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HEMATOGENOUS INFECTIONS OF THE KIDNEY *

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The surgical aspects of nephritis have led to extensive discussion, and but little agreement exists with regard to the types that are not clearly surgical. Wide differences of opinion are also manifest among those who have given the most time and attention to the study of nephritis in general. The accumulated literature on the subject is monumental; much of it, unfortunately, is confusing, and often even the fundamentals are the subject of controversy. Recently, however, articles have been published that help to clear up some of the moot questions.

Historically, the chief point of interest with reference to nephritis is the profound knowledge of the various phases of the disease exhibited by Richard Bright,[1] one of a long line of brilliant workers in Guy's Hospital, London. In 1827 and again in 1836 Bright, in epoch marking papers on edema and on albuminuria, pointed out that fundamentally there are two kinds of nephritis: Type 1, the acute or "wet" nephritis; and Type 2, the chronic or "dry" nephritis.

Type 1, which involves the kidney filter, was to be recognized pathologically in cases in which the large white kidney was found. Clinically, the type was characterized by edema, especially in the acute stage, and by urine containing albumin and casts, and at times blood corpuscles, the urinary findings varying in extent with the acuteness of the process and the amount of involvement of the kidneys. Both kidneys are always involved, and exhibit a wide pathologic architecture. The morphology varies as the toxic agents vary in toxicity and affect different structures of the kidney.

BRIGHT'S TYPE 1 NEPHRITIS

Since the publication of Bright's work, we have learned that Type 1, or the "wet" type of nephritis, is usually the result of toxins developed in the course of infectious diseases. Diptheria antitoxin affords the best known example of the effect of bacterial toxins on the kidney; it may produce changes in the kidney analogous to the nephritis which sometimes develops in cases of diphtheria. The frequency with which Bright's Type 1 and infective nephritis follow lesions of the skin and mucous membrane, especially in children, is worthy of note, as shown by the nephritides following scarlet fever, tonsillitis, etc. In the adult, exposure to cold, especially of the cutaneous surfaces of the body, plays a definite rôle. The value of the skin as an aid to elimination in cases of defective kidney function has long been well known. The effect produced by hot packs and similar therapeutic measures is to cause a flow of perspiration which may eliminate large amounts of chlorids and some urea.

It is true that acute nephritis may be produced by other toxic agents, such as cantharides; but to all intents and purposes an infection lies behind it. The edema is to a large extent due to a failure of elimination of chlorids. Chlorids, usually taken in the form of common salt, are a constant requirement of all animal life. The herbivorous and omnivorous animals obtain the necessary amount in the form of salt, while the carnivorous obtain a sufficient amount from the flesh they consume. The chlorids are largely excreted by the kidneys. In acute nephritis, chlorid is not fully eliminated, and edema results. The physical and chemical reactions involved in the production of edema by chlorid retention are still greatly disputed, however, and it is apparent that there are varying factors to be considered.

BRIGHT'S TYPE 2 NEPHRITIS

Bright's Type 2, called the dry type because edema is not present, involves the connective tissue and blood vessels, especially the arteries; the patient suffers from headache, nausea, vomiting, hypertension and other symptoms of uremia. The symptoms may be latent for long periods. Urea retention is one of the final consequences of this type. While urea will not of itself, when in excess in the blood, produce uremia, it is closely associated with if not one of the agents which produce the uremic manifestations. Both kidneys are involved, and pathologically in the typical case the kidneys are contracted and granular. The urine is of low specific gravity, pale, and large in amount. The urinary findings may consist only of an occasional cast and a trace of albumin, although at times there may be large amounts of albumin. This type of Bright's disease is closely associated with or is a part of a general vascular disease, and perhaps should not be described as a true primary nephritis. Changes in the heart are so characteristic of chronic Bright's disease that the appellation of cardiorenal disease is at times not inappropriate. The pathologic architecture varies with the situation of the chief con-

* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Bright, Richard: Reports of Medical Cases with a View of Illustrating the Symptoms and Cure of Diseases by a Reference to Morbid Anatomy, London, Longmans, Green & Co., 1827-1831, 2 vols., xvi, 231 pp.; xl, 724 pp.; Cases and Observations Illustrative of Renal Disease Accompanied with Secretion of Albuminous Urine, Guy's Hosp. Rep. **1**: 338-379, 1836; Tabular Review of the Morbid Appearances in One Hundred Cases Connected with Albuminous Urine, with Observations, Guy's Hosp. Rep. **1**: 380-400, 1836.

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nective tissue deposits and the changes in the renal vascular system. Bissell[2] and other pathologists call attention to the fact that many of the changes in the kidney called nephritis are regressive in character. Neither infections nor the products of infection, so far as is known, play an important part in the etiology of Bright's Type 2. The cause of the condition is as yet unknown, but it is probably due to disorders of metabolism.

Edema may develop in chronic Bright's disease (Type 2), but if it does it is almost invariably the result of cardiac failure and not of salt retention. Widal had divided nephritis functionally into two forms: the chloremic or salt retention type, corresponding to Bright's Type 1, and the azotemic, nitrogen or urea retention type, corresponding to Bright's Type 2. It has been asserted by various authorities that chronic Bright's Type 2 is the late result of Type 1. I am convinced, however, that Bright's Types 1 and 2 are entirely independent diseases.

A discussion of the differentiation is unnecessary here, but the confusion seems to arise from mixed types. In certain varieties of Bright's Type 1, chronicity may be a feature. This is especially true of a form of Type 1, caused by chronic focal infections. I have seen what were believed to be cases of Bright's Type 1, caused by chronic infections of the teeth, tonsils, gallbladder, or by duodenal ulcer, etc. These patients recovered from the nephritic disturbance after operative cure of the focus of infection. Subacute infections, with slowly sterilizing abscesses, will often cause symptoms of a nephritis which disappear as the cause is removed. Excessive connective tissue may develop in the kidneys in some cases of Type 1 so that the resemblance is close to the contracted kidneys of Type 2; but the vascular changes are different. Again, chronic Bright's disease, Type 2, acts as a cause for lowered resistance of the kidneys, and a secondary true nephritis of Type 1 may be added to the condition, especially as a terminal infection leading to the frequent postmortem finding of death from acute nephritis superimposed on chronic nephritis. This confusion is further increased in some cases by pathologic changes in the kidney, the late results of unrecognized hematogenous infection which might well be called Type 3.

FUNCTION OF THE KIDNEY

Rowntree[3] calls attention to the fact that medicine of the last decade centers around the question of function, so far as the kidney is concerned. The capacity of the kidney to carry on its work, rather than its appearance, has come to be recognized as the important factor. This is well shown by the value clinically of the phenolsulphonephthalein test and the test of the chemistry of the blood. The percentage of urea in the blood or the phenolsulphonephthalein test will frequently give a clue to the state of the kidneys that cannot be obtained from the urinary findings.

That the kidney in health filters bacteria out of the blood, and by so doing receives no injury, is a fact too well known to require comment. It is the retention of the bacteria in the kidney which produces the trouble. But we know much less about its ability to filter out toxic materials. In the greater number of cases of nephritis, no bacteria are found, and we must believe that it is some material, the result of infection, rather than the bacteria themselves that cause the trouble, although it is possible that an ultramicroscopic organism exists as the causative factor. The kidney normally filters out urea, which is the ash of protein derivatives, the amino-acids. The patient with a granular, contracted kidney (Bright's Type 2) must of necessity pass a large quantity of urine; the specific gravity is low because the kidney filter is damaged and fails to eliminate normal concentrations of urea and similar bodies. As these products are not threshold bodies, they are always to be found in both the blood and the urine.

On the contrary, sugar in the blood is a threshold body. When it rises beyond the normal, the excess flows off through the urine, and diabetes results. The threshold, however, is not an exact point, and many persons with crops of boils or carbuncles may, by testing the blood for sugar percentages, be shown to have an increased amount of blood sugar without having sugar in the urine, just as in others a low threshold permits the escape of sugar from slight temporary causes, so-called dietetic or alimentary glycosuria, which is without pathologic significance.

Embryologically, the kidney has a double origin: First, the ureter, the pelvis, the calices, and the straight collecting tubules all lined with pavement epithelium, which are derived from the wolffian duct and have no function beyond that of collecting urine as it is formed. The chief response of the part of the kidney thus derived, when diseased, consists in the development of infections, calculi, etc., and if the disease is a malignant one, it is a true carcinoma. Obstructions to the urinary outflow at any point are most potential of mischief through failure of drainage. The medullary part of the kidney is composed of the urinary collecting channels just described and of the venous channels which carry back the purified blood to the general circulation. Second, the filtering portion of the kidney, which arises from the mesothelium and forms in large part the cortical substance which is the arterial side of the kidney, bringing blood from the general circulation for purification. The common, solid tumors of the kidney that we have miscalled hypernephroma are, as pointed out by Wilson,[4] true mesotheliomas; that is, malignant neoplasms arising in the kidney filter. I think we may agree with Cushny[5] that the kidney does not secrete urine, but filters it. The kidney may be aptly compared to a separator. The arterial blood enters the kidney cortex, the urine is filtered out, and the venous blood pases back to the general circulation. Weld,[6] by his experimental injections of mediums, demonstrated the physics of the process outlined. The partial failure of the two halves of the kidneys to unite, so that the urine, when filtered, is not freely admitted into the collecting tubules, produces the so-called congenital polycystic kidneys that are eventually associated with chronic nephritis.

2. Bissell, W. W., and Le Count, E. R.: A Consideration of the Relative Frequency of the Various Forms of Coma with Special Reference to Uremia, J. A. M. A. **64**: 1041-1045 (March 27) 1915.

3. Rowntree, L. G., and Geraghty, J. T.: An Experimental and Clinical Study of the Functional Activity of the Kidneys by Means of Phenolsulphonephthalein, J. Pharmacol. & Exper. Therap. **1**: 579-660 (July) 1909-1910.

4. Wilson, L. B.: Hypernephromata, Old Dominion J. M. & S. **10**: 238-252, 1910.

5. Cushny, A. R.: The Secretion of Urine, New York, Longmans, Green & Co., 1917, 251 pp.

6. Weld, E. H.: Renal Absorption with Particular Reference to Pylographic Mediums, Thesis submitted to the Graduate Faculty of the University of Minnesota in partial fulfilment of the requirements for the Degree of Master of Science in Surgery, June, 1919.

TYPE 3 NEPHRITIS

Nephritis, the result of living organisms, may be called Type 3. True nephritis is concerned with the filter portion of the kidney, and the failure to filter out all the bacteria and their retention is responsible for the occurrence of one form of the disease, which is of great surgical importance. As to just how often such infections may be ascending or lymphogenous rather than hematogenous in origin there is a diversity of opinion. My own opinion is that such infections, other than hematogenous, are extremely rare so far as the kidney filter is concerned, though it is possible they may be more frequent in that part of the kidney devoted to collecting urine.

Accepting the idea that there is a common form of true nephritis which differs from Bright's Types 1 and 2 and is caused by a bacterial infection, we quickly see that the effect on the kidney will depend on the nature of the bacteria, their number and on the condition of the kidney itself, on whether, for example, there is an anomaly present, such as hydronephrosis or calculi, which makes the kidney more vulnerable. The importance of this has been shown by Cabot and Crabtree,[7] who demonstrated that the pus cocci affect the cortex of the kidney and often follow lines of least resistance toward the periphery; and that the colon bacteria affect the straight collecting tubules of the pyramids, extend from them to the pelvis, and there produce a pyelitis. Pyogenic infections may lead to cortical abscesses and other evidences visible to the eye; but with scanty urinary findings beyond a trace of albumin in the acute stage, and a few microscopic pus and blood cells, the urinary evidences are so slight as to be overlooked unless great care is exercised. In the subacute and chronic forms the kidney may be more or less destroyed, and the common forms of pyonephrosis will follow. The pyogenic cocci are short lived and often are not to be found in the pathologic changes their action initiates. On the contrary, colon bacteria, by the production of copious, purulent sediment in the urine, give abundant evidence of infection without abscess formation in the kidney. Acute nephritis (Bright's Type 1) is the result of toxic products, not of living organisms, as in diphtherial and scarlatinal nephritis, and the two kidneys are equally involved. When the nephritis is the result of living bacteria (Type 3) the kidneys may be involved unequally or unilaterally, the unilateral infection being in the kidney which is more vulnerable because of some physical defect. The pus-producing organisms affect the kidney much as do tubercle bacilli, and those who have studied tuberculosis of the kidney will recognize the resemblance.

Hematogenous nephritis is often caused by cocci found in the skin, especially staphylococci derived from boils, carbuncles, etc., and from focal infections generally. The staphylococcus is short lived and often affects only one kidney. Acute streptococcal infections are most malignant. Subacute and chronic streptococcal infections occur commonly as a result of septic endocarditis, and appear in the kidney as a terminal infection, embolic in character.

In the fulminating type of hematogenous pyogenic infection, unless nephrectomy is performed, death may often result within a few days. The acute condition is often confused with acute intraperitoneal infections; on the right side, especially, is the differentiation from cholecystitis and appendicitis necessary. This may also be true of the less acute form. In the subacute and chronic forms, natural processes may localize and sterilize the foci of infection, and the patients may fully recover, or partial recovery may later be followed by chronic infection, and the kidney will be converted into a pyonephrosis. The fact should be recalled that septic infarcts rupturing through the capsule of the kidney are the most common cause of perinephritic abscess.

Bright's disease, both Type 1 and Type 2, is of surgical interest only because of complications. But all the nephritides caused by living bacteria (Type 3) are of great surgical interest and have, until recently, been confused with Bright's disease. Hematogenous kidney infection is the one bright picture in a group of maladies that have been discouraging in the extreme. The surgeon of today is as greatly interested in nephritis as is the internist.

In reviewing the large mass of literature on nephritis, rather superficially, it is true, I have been particularly impresesd with the clear and logical presentation made by Brewer[8] in a series of published papers beginning in 1911, in which he demonstrates hematogenous pyogenic infections of the cortex of the kidney clinically, experimentally and pathologically. In this connection, I wish to comment on the value of the contributions of the surgeon to such problems. Nephritis has been studied largely from a clinical and a necropsy standpoint. Clinical observations in these cases are notoriously unreliable, while the necropsy shows the terminal conditions that cause death. This exposition of terminal change, determined at necropsy, is exceedingly difficult to interpret in the living, and the final catastrophe leading to the death of the patient produces pathologic changes obscuring those that existed during life. In no other way can I explain the various theories and controversies which have marked the history of the study of nephritis. The clinician attempts, by study of the urine and the symptoms of the patient, to explain the terminal conditions found after death, which may not have existed at the time the clinical examinations were made. The surgeon, not by reason of greater acumen but by opportunity, now furnishes the missing link in the investigation which carries the truth, and makes possible an exact study of the kidney before the terminal infections, which are encountered at necropsy, obscure the picture.

Payne and MacNider,[9] and Buerger[10] have shown the hematogenous origin of certain of the so-called chronic, essential hematurias, demonstrating that infection in and about the straight tubules, resulting in the development of scar tissue, which interferes with the venous circulation, causes congestion and varicosity of papillae and leads to rupture and renal hemorrhage. This gives a pathologic explanation for several cases in which we explored to find the cause of renal hemorrhage, and in which one or more papillae were found to be the seat of varicosities.

7. Cabot, Hugh, and Crabtree, E. G.: A Classification of Renal Infection with Particular Reference to Treatment, Boston M. & S. J. **174**: 780-785 (June 1) 1916.

8. Brewer, G. E.: The Present State of Our Knowledge of Acute Renal Infections, with a Report of Some Animal Experiments, J. A. M. A. **57**: 179-187 (July 15) 1911; A Rare Type of Unilateral Hematogenous Infection of the Kidney, Yale M. J. **17**: 237-252 (Jan.) 1910-1911; Observations on Acute Haemic Infections of the Kidney, Am. J. Urol. **9**: 549-570, 1913; Hematogenous Infections of the Kidneys, a Summary of Our Present Knowledge, New York M. J. **101**: 556-560 (March 20) 1915.

9. Payne, R. L., and MacNider, W. B.: The Surgical Problem of Unilateral Symptomless Hematuria, J. A. M. A. **67**: 918-923 (Sept. 23) 1916.

10. Buerger, Leo: Concerning Certain Types of Hemorrhagic Nephritis, M. Rec. **94**: 1057-1061 (Dec. 21) 1918.

I have been greatly interested in the chronic form of hematogenous nephritis of bacterial origin. In a number of instances, I have explored and found small, cortical, pimple-like collections of fluid in the kidney in various stages of sterilization. I have been able to link up another most interesting sequel to the condition, namely, the occasional deposit of calcium carbonate in such an infected area, usually close to or connected with the capsule, which produces a roentgen-ray shadow resembling that of stone. The diagnosis of stone is often justified by the history of the acute, severe attack which marks the onset of infective nephritis. I have known such deposits of lime to form as soon as two months after the primary symptoms. Why, in some persons, lime is deposited during the process of the cure of the infection, I do not know. The kidneys in such cases are often painful. Our patients were relieved by the excision of the lime masses, and by decapsulation. In several cases, the deposits of lime were deeper in the cortex. There are almost no urinary signs or symptoms in these cases, as the masses are in the cortex with little communication with the collecting parts of the kidney. It is very evident, too, that in some painful kidneys, with dense scars in the capsule, the origin is similar, and the condition may be relieved by decapsulation. I have been slow to admit that capsular compression of the kidney could be the cause of symptoms, but I have seen at least three cases in which hypertrophy of the remaining kidney within its fibrous capsule, after the removal of its fellow for disease, produced pain from the stretching of the capsule. The kidneys were low and movable, and the patients thin, and I was able to follow the compensatory hypertrophic enlargement by palpation, and to satisfy myself that the hypertrophy caused the pain.

In our experience, decapsulation has been valuable in this small group of cases in which there are scars and lime deposits in the capsule of the kidney, and in another group still more rare, that of acute nephritis (Bright's Type 1), in which, as pointed out by Morris,[11] the operation occasionally enables the kidneys to functionate when urinary function has ceased and the patients are apparently in a dying condition. For movable kidney, etc., we have seen no good effect from nephrorrhaphy other than the psychic.

ABSTRACT OF DISCUSSION

Dr. Hugh H. Young, Baltimore: Dr. Mayo's paper is somewhat parallel to an article I wrote a number of years ago, in which I took up the history of urology. Among other things it was easy to prove that John Hunter was originally a urologist, although the pathologists claimed him as the father of pathology, and the internists claim him as the father of modern medicine. In regard to this society, as one of the original founders of it, I may say that the reason we called it the section on genito-urinary diseases, was just with the idea of grouping here all types of scientific men interested in the urinary tract, not only general surgeons but also internists and physiologists and all others who are interested in the urinary tract. Dr. Mayo's point that the surgeon has played a very important part in clearing up the pathology of many parts of the body is, I think, very well taken. We know how the pathologist and the internist groped for many, many centuries over typhlitis and perityphlitis, and had no conception of the internal pathology or the real fundamental basis of the condition until the surgeon cleared it up. Real pathology of the kidney made very little progress since the time of Bright, and it is interesting to note that Dr. Mayo goes back to the classification of Bright as the standard classification of renal infections. For a number of years the question as to the possibility of a unilateral nephritis has been a mooted one. Casper claimed that unilateral nephritis was possible. The trouble was that these cases were not seen early, or that the disease was not studied thoroughly. Undoubtedly those cases are apt to be caused by some obstruction below. Undoubtedly the kidneys filter out bacteria constantly, which probably is one of the ways the body has of getting rid of bacteria, and happily the kidneys are able to take care of it, and there is no infection in the large majority of cases. When the bacteria are retained there is probably some condition below which prevents their elimination. I think that obstructive conditions of the urinary tract are present in a far greater number of cases than we realize. Whatever is the cause of these conditions is a question that needs working out in every individual case. Dr. Mayo spoke of focal infections in the kidney, one of the most interesting and puzzling conditions met with in the kidney. His fulminating type is rarely seen. They are not generally seen except by the internist or the general surgeon who is called to operate on a man who is desperately sick, and he may accidentally find the condition present. It has been extremely rare in my experience. The relation of that condition to the more chronic types is not very definite, because those patients very frequently die before the condition becomes chronic.

Dr. William Linder, Brooklyn: The subject of hematogenous infection of the kidney is of great interest to the surgeon as well as to the general practitioner. It has been pointed out that this disease early involves only one kidney. The clinical picture is one of an acute upper abdomen. The history is one of acute onset, ushered in with a chill and frequently preceded by some external lesion, such as a carbuncle or a sore throat. Examination will reveal a distended abdomen, tenderness in the upper abdomen but no rigidity. This alone differentiates it on the right side from a perforated gastric or duodenal ulcer. It, however, must also be differentiated from an acute perforative appendicitis in the retrocecal region. But the history of appendicitis will aid us not to be misled, i. e., general abdominal pain, vomiting then localization to the right side and finally rise of temperature will point to appendicitis. The most important sign or symptom is tenderness and a sense of rigidity in the costovertebral angle. The Murphy fist percussion sign is of great aid. The urinary findings in this condition do not help us; one may find a few white and red blood cells. Therefore, it can easily be differentiated from an acute pyelitis where pus is frequently found in the urine. In my service at the Jewish Hospital I have operated in more than 100 cases of this type of kidney infection. Some of these patients were pregnant women and a diagnosis of unilateral kidney infection was made and confirmed at the operating table. The treatment in these cases of the fulminating type is nephrectomy; fortunately these cases are few in number. In the subacute type, decapsulation, if the patient is seen early, will save both the kidney and the patient. Hence, the importance of early diagnosis. These lesions, as has been pointed out by Dr. Mayo, are cortical and a metastatic infection is carried by the blood stream. They are minute miliary abscesses and decapsulation allows these abscesses to rupture and drain.

Dr. Guy L. Hunner, Baltimore: I would like to ask Dr. Mayo if he thinks it is really safe teaching to recommend nephrectomy in many of these cases? I am familiar with Brewer's recommendations in that line, but for some reason they have not appealed to me. In the first place, we cannot differentiate, within the first few days, in the acute cases, between these acute cortical abscess cases and mere pyelitis cases. Even in the acute pyelitis case the urine contains albumen, blood and casts, that we usually consider characteristic of these acute cortical infections. There is the same high temperature, the chills, the prostration and, as

11. Morris, H.: Notes on the Surgical Treatment of Affections of the Kidney, Ann. Surg. 5: 289-305, 1887; Surgical Diseases of the Kidney and Ureter, Including Malformations and Misplacements, New York, Cassell & Co., 1901 2, 670 pp.

far as I know, it is rather impossible to differentiate which the patient has. If you are going to operate at all it probably ought to be done early, and that is Brewer's teaching. I think Dr. Mayo will agree that some of these patients undoubtedly recover spontaneously if we leave them alone and treat them as we would a pyelitis patient. He has spoken of a series of cases in which he finds evidences of past infection, with the lime deposits, showing that some of those patients have recovered. So altogether it seems to me that if we are going to operate at all in these cases it would be safer teaching for the average surgeon to recommend mere drainage, or, perhaps, decortication. If I operated at all on a case of that sort I should prefer drainage. In such cases a few kidneys will be saved, and a few, of course, will remain infected, and perhaps have to be removed later. But in any of these cases, another point in favor of some form of conservative operation is the fact that we cannot tell whether they are unilateral, or bilateral. The symptoms may all be referred to one side; but I have had cases where later, after the patient had recovered, investigation showed that both kidneys were infected, whereas in the acute attack we considered but one kidney to be infected. I would like to ask Dr. Mayo's opinion about these points.

DR. LEON LOURIA, Brooklyn: I have learned of the type of infection of the kidney to which Dr. Mayo refers only during the last few years. The subject was entirely new to me, and it was only by observing the findings on the operating table that I could clarify in my mind the pathology of this disease. Hematogenous infection of the kidney is distinct from pyelitis, it is due to a general infection, with localization in the kidney. There are fulminating cases, which are not recognized at all—or only too late to save the patient's life. At the Jewish Hospital of Brooklyn, I have seen a number of these cases and referred them to the surgeon. The internist sees them first, and he must make a diagnosis. We deal with a general infection very frequently following a tonsillitis, with metastases in one kidney. Sore throat is often followed by chill and fever, but the patient does not localize the pain; still, if you keep in mind this type of kidney infection, and press your finger firmly in the costovertebral angle you easily elicit an acute pain; and if you can exonerate the appendix and gallbladder, the diagnosis is made. After the conclusion has been reached, our attitude in these cases should be identical with that in cases of appendicitis. Nobody can predict the course of an acute appendicitis; so then, in acute hematogenous kidney we cannot be sure, *a priori*, that the infection, left alone, will not destroy the life of the patient, or at least one kidney, while both may be saved by timely surgical intervention. Internists have learned that the appendix belongs to them only until they make the diagnosis, and then it becomes the property of the surgeon. I think the same principle ought to be applied to the acute kidney. A surgeon ought to be consulted; if experience has taught him that this particular kidney can be saved without operation, well and good, we will stand by him; otherwise an operation ought to be performed. No single surgical procedure should be binding, the surgeon ought to proceed without a contract; no promise of saving the kidney can be made to the patient in advance. If on inspection of the kidney the surgeon feels that the organ can be saved, he will not do a nephrectomy, but he will resort to a minor operation, decapsulation, nephrotomy or partial excision. If you are sure that the patient has another kidney, and the partner is functionating properly, the hazard is not great, as we know that man can live with one kidney. A few years ago I said that I felt that nature was provident in giving us two kidneys, in that she consigned one to the surgeon and left one for the patient.

DR. FRANK HINMAN, San Francisco: Two points might be emphasized in this discussion: In the first place, the type of infection. We all know that the colon bacillus does not produce abscesses in the kidney, and it seems to me that this discussion is confused by the fact that many of these acute infections of the kidney, probably the great majority of them, are due to the colon bacillus. And these kidneys can always be left alone. They do not demand operation in the acute stages. On the other hand, streptococcus or staphylococcus infections of the kidney are the type of acute infections of the kidney that are so frequently hematogenous and surgical and are the kind that sometimes demand immediate operation to save the patient's life. I inferred from Dr. Mayo's paper that this was the type he referred to particularly. The other fact that should be emphasized is that the kidney is not an excretory organ for bacteria by choice; it is only that when the circulation is overwhelmed with bacteria, or when the kidney is injured, or is nonresistant that infections of the kidney occur. This can be shown experimentally in a great many ways. If you inject animals with living cultures of bacteria you will find that the liver and the lungs, the gallbladder, and the other organs of this animal will be loaded with bacteria, and the kidney will show relatively few. The kidney, therefore, is not an excretory organ for bacteria. Marked infection of the kidney occurs much more often with potato cultures than with broth cultures due to the clumping and the resultant capillary emboli in the former instance. The type of infection, whether colon bacillus or coccus, and a knowledge of the particular renal injury present, in view of the fact that the kidney is not, by choice, an excretory organ, can often shed considerable light on questions of surgery, particularly in reference to these acute septic kidneys.

DR. WILLIAM J. MAYO, Rochester, Minn.: I was particularly interested in having Dr. Hugh Young lead this discussion because I believe that in the Brady Institute which is under his charge there is a great opportunity to solve such problems as this by attacking them from every side. Organized effort will clear up moot questions in urology just as has been done in other fields. Dr. Hunner has brought up an important point with regard to nephrectomy. Nephrectomy is only for the exceptional case. In a very high percentage of these acute cases the patients get well or eventually develop a chronic condition of pyonephrosis and come to operation later. Many cases may be in their inception so mild that we do not appreciate the condition as an acute, or even a subacute process presenting so few symptoms. There are cases, however, as pointed out by Brewer, in which nephrectomy is necessary to save life. I have removed a kidney in a few such cases. On two occasions I operated from in front, expecting to find acute suppurative cholecystitis, but on exploration I discovered that the real seat of the trouble was in the kidney. The kidney when removed was found to be riddled with acute abscesses. I could not conceive that such a kidney might be cured by decapsulation or drainage. It should not be assumed for a moment that the kidney should be removed early in all cases; probably nine out of ten such patients in this condition will either enter into a chronic or get well. I wish again to call attention to the fact that these cases may sometimes be seen in the process of sterilization. In some instances little pimple-like masses were shown to be bacteria free, and others contained bacteria, and in the late stages of cure carbonate of lime may be deposited in the sterilized area giving rise to roentgen-ray shadows.

A Literary Fragment on Syphilis and Tobacco.—The following quotation from a curious document printed in London in 1604, entitled "A Counterblaste to Tobacco," affords some insight, both into the belief of that day as to the origin of syphilis and as to its treatment: "For Tobacco being a common herbe, which (though under divers names) growes almost every where, was first found out by some of the barbarous Indians, to be a Preservative, or Antidot against the Pockes, a filthy disease, whereunto these barbarous people are (as all men know) very much subject, what through the uncleanly and adust constitution of their bodies, and what through the intemperate heate of their Climat: so that as from them was first brought into Christendome, that most detestable disease, so from them likewise was brought this use of Tobacco, as a stinking and unsavorie Antidot, for so corrupted and execrable a Maladie, the stinking Suffumigation whereof they yet use against that disease, making so one canker or venime to eate out another."

STUDY IN A FOUNDLING INSTITUTION TO DETERMINE THE INCIDENCE OF CONGENITAL SYPHILIS *

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This study consisted in examining all the infants and children in a foundling institution in an effort to determine the incidence of congenital syphilis. Their bloods were examined by means of the Wassermann reaction; luetin skin tests were made on them; and they were subjected to complete physical examinations, careful observations being made with regard to the growth and development and the usual symptoms attributable to congenital syphilis.

The bloods were obtained from the infants with open anterior fontanels from the longitudinal sinus and, in those whose fontanels were closed, from the vein at the bend of the elbow, and in a few instances from the vein over the inner malleolus. The bloods were collected in accordance with the usual method and transmitted to the laboratory for examination. The original Wassermann test was made on each blood, and, in addition, a second test was made by modifying the original test in using one unit of hemolysin instead of two as in the original, and in incubating over a longer period of time. The readings in both the tests corresponded in every case.

The luetin skin tests were made according to the technic outlined by Noguchi, and were carried out minutely. Readings were made every twenty-four hours over a period of nearly two weeks. The duration of the reaction was from two days to nine days, and in some instances the induration remained even longer. The earliest pustular reactions occurred in two days. These reactions were not always the ones to remain the longest time.

REACTIONS TO LUETIN AND WASSERMANN TESTS

There were, in all, 106 infants and children on whom both luetin and Wassermann reactions were made. The luetin reactions were positive in seventy-nine cases, negative in eighteen, and doubtful in nine. In twelve of the negative and four of the doubtful cases the age of the infants was 3 months or under; in the remaining negative and doubtful cases, six and five, respectively, the children were above that age. Of the positive luetin reactions the age of the infants in six cases was 3 months or under, the youngest 1 month and 2 days, the next 2 months and 5 days, and the remainder ranged up to the oldest child investigated. The doubtful reactions were also more frequent the younger the child.

The Wassermann reactions were negative in all the cases. This seemed to be an extremely unusual occurrence and one entirely unlooked for, so that without any desire to discredit the value of the Wassermann reaction in congenital syphilis, but in order to exclude the possibility of an error's having crept in, the following checks were made:

1. A series of eight bloods, four from children showing positive luetin reactions and four from children showing negative luetin reactions, were obtained by the same investigator and by the technic by which the original bloods were obtained, and were submitted to another serologist, without specifying the origin of the cases. This serologist made the original Wassermann test and, in addition, a Tschurnogubow modification of the original, all with negative results.

2. Another series of bloods was then obtained from the children by the second serologist and examined by him, and these also gave the same negative findings. These two series excluded the possibility of error either in the technic of securing the blood for the serologist, or in the technic of performing the Wassermann tests, with the possibility of improper material.

Further evidence as to the reliability of the results of the original tests is manifested when it is shown that while these bloods were being examined and were giving negative Wassermann reactions, an interesting series of ninety-six positive Wassermann reactions was simultaneously being found in the bloods of 160 persons, not at all connected with this investigation, by the original serologist who reported on the bloods of the inmates of this institution. This clearly showed the reliability of the method and of the technic employed by him in his investigation at the foundling institution.

The question naturally arose as to the reliability of the luetin tests and their readings. The technic consisted in cleansing the inner aspect of the forearm of any visible dirt with soap and water. It was then dried and wiped with ether. The skin was allowed to air-dry, and the luetin was injected intradermally by means of a tuberculin syringe with a fine steel needle. The readings were made by each of us separately and the results compared, the findings being identical. So as to check the technic of the luetin tests, physiologic sodium chlorid intradermal injections were made in the same manner as for the luetin tests, in five cases giving positive luetin reactions and in five cases giving negative luetin reactions, and in every instance the reading was negative. To dispel the idea of a defective luetin being used (which was not believed to be the case), a luetin secured from another manufacturing house was obtained, and a series of injections was made which included four previously positive cases and four previously negative cases. In each instance the reading corresponded with the reading in the original test.

In making the readings of the luetin reactions on the first occasion, an interesting development occurred: Instructions had been given to withhold all medication pending the investigation. These instructions were carried out, with this exception: On reading the luetin reactions in the room of a certain group of bottle feeders, attention was immediately called to the violence of the reactions, which was emphatically stated by one of us to be due to the use of iodids. After an immediate investigation it developed that the dietitian, in making the daily food, had continued to add the usual drops from a container to the usual bottles for each baby, as was customary. This container held a solution of syrup of ferrous iodid.

These luetin readings were not considered as positive in this series, but were carefully watched. On the cessation of the iodids, the reactions promptly subsided, and at the end of eight days, when the reac-

* Read before the Section on Diseases of Children at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

tions had disappeared, with the exception of only a small indurated area, a second luetin test was made. In seventeen instances, the reactions at the end of twenty-four hours were diffuse, and somewhat resembled the iodid reactions; but in another twenty-four hours they had lost their diffuse appearance and resembled the iodid reactions; but in another twenty-four duration. In the seven remaining instances, the reactions were all positive and pursued the course of the normal positive luetin reaction.

Of the 106 infants and children investigated, fifty-seven were males and forty-nine females. Their ages ranged from 1 month to 5 11/12 years, with the exception of one child of 7 years. The ages and the numbers of cases are given in the accompanying table.

NUMBER OF CASES AT THE VARIOUS AGES

Years	Months	No. of Cases	Years	Months	No. of Cases
..	1	5	2	9	1
..	2	13	2	10	1
..	3	4	3	..	2
..	4	1	3	3	1
..	5	2	3	4	1
..	6	1	3	5	1
..	7	1	3	6	2
..	8	6	3	8	2
..	10	2	3	9	1
..	11	4	3	10	1
..	12	5	4	..	3
..	15	3	4	1	1
..	17	1	4	3	1
..	18	4	4	4	1
..	19	3	4	7	1
..	21	2	4	9	1
2	..	1	4	11	2
2	1	3	5	..	3
2	2	3	5	1	1
2	3	2	5	4	1
2	4	1	5	7	1
2	5	5	5	10	1
2	7	1	7	..	1
2	8	2			

There were twenty-two cases in children under 3 months, and eighteen in those under 2 months. From 3 months to 6 months inclusive, there were four; from 6 months to 1 year, eighteen; from 1 year to 2 years, fourteen; from 2 years to 3 years, twenty-one; from 3 years to 4 years, twelve; from 4 years to 5 years, ten, and from 5 years to 7 years, five. Forty-one and six tenths per cent. were under 1 year; 33 per cent. in children from 1 to 2 years; 11.3 per cent. in children from 2 to 3 years; 9.4 per cent. in children from 3 to 4 years, and the remaining 4.7 per cent. in children from 4 to 7 years.

LEGITIMACY

Fifty-nine of the infants and children were legitimate, forty-three were illegimate, and in four the legitimacy was not known. Of the fifty-nine legitimates, forty-six, or 77.97 per cent., returned positive reactions; six, or 10.17 per cent., negative; and seven, or 11.8 per cent., doubtful reactions. Of the forty-three illegitimates, thirty, or 69.76 per cent., returned positive reactions; eleven, or 25.58 per cent., negative reactions; and two, or 4.65 per cent., doubtful reactions. Of the four children whose legitimacy was unknown, three, or 75 per cent., returned positive reactions, and one, or 25 per cent., negative reactions.

There were under 3 months of age, six legitimate, and fifteen illegitimate infants, and one whose legitimacy was unknown. Of the six who were legitimate, two returned positive reactions; two, negative, and two, doubtful reactions. Of the fifteen who were illegitimate, four returned positive reactions; nine, negative reactions, and two, doubtful reactions. The infant whose legitimacy was unknown returned a negative reaction.

One legitimate and nine illegitimate infants in whom negative reactions were obtained had syphilis skin eruptions. All of these infants were under 3 months of age. Forty-seven, or 79.66 per cent., of the fifty-nine legitimate children and thirty-nine, or 90 per cent., of the forty-three illegitimate children were therefore syphilitic. These, together with the three positive cases of doubtful legitimacy, gave a total of eighty-nine positive cases in the 106 inmates, or an incidence of 83.96 per cent. as revealed by all available methods of diagnosis.

PHYSICAL CONDITION

Weight.—Weights were studied in ninety-three cases. In eighty-seven they were below the normal average, in four instances they were normal, and in only two instances were they above the normal average, namely, in one child, aged 5, and in another, aged 2 years and 6 months. In seventy-one cases in which children returned positive reactions the weights were below normal in sixty-six, normal in three, and above normal in two. And in sixteen cases in which the reaction was negative, weights were below normal in fifteen, and normal in one. In six doubtful cases the weights were below the normal. The weights of the legitimate children were below normal in forty-six instances, and normal in one; of the illegitimate children, below in thirty-eight instances and normal in three, and of the three children whose legitimacy was doubtful, below in each instance.

Height.—The heights were studied in eighty-four instances, in which there were sixty positive, seventeen negative, and seven doubtful reactions. The heights were normal in two cases in which the reaction was positive; above normal in ten cases in which it was positive, in eight in which it was negative and in three in which it was doubtful; and they were below normal in forty-eight positive, nine negative and four doubtful cases. With the legitimate children, the heights of ten were above normal; that of one, normal, and thirty-two below normal; while the heights of the illegitimate children were above normal in ten, normal in one, and below normal in twenty-eight cases. In the two cases in which the legitimacy was unknown, the heights were above and below in one instance each.

State of Nourishment and General Appearance.—The nourishment and general appearance coincided almost exactly in 104 cases. They were fair in twenty-two positive cases, three negative cases, and three doubtful cases; poor in forty-four positive, fourteen negative, and five doubtful cases; and very poor in eleven positive cases, one negative case, and one doubtful case. The nourishment and the general appearance of the legitimate children were fair, poor and very poor in twenty-one, thirty and seven instances, respectively; of the illegitimate children, fair, poor and very poor in seven, twenty-nine and six instances, respectively, and poor in four instances in which the legitimacy was not known.

Nails.—The nails were found to be claw shaped or ridged in fifty-five instances, including thirty-nine positive, ten negative and six doubtful cases. In this classification were thirty-two legitimate children, twenty-one who were illegitimate, and two regarding whom legitimacy was not known.

Glands.—Glandular enlargements were present in eighty instances. The glands found to be enlarged

were the cervical, the inguinal, the axillary and the epitrochlear. The frequency of their enlargements were in the order named. They were enlarged in fifty-nine positive, thirteen negative, and eight doubtful cases; or in forty-two legitimate children, thirty-five illegitimate children, and three whose legitimacy was not known.

Costal Beading and Flaring Ribs.—Costal beading and flaring ribs were found in forty-five instances: twenty-four times in positive cases, fifteen times in negative cases and six times in doubtful cases; or in twenty-five legitimate children, nineteen illegitimate children, and one child whose legitimacy was not known.

Liver.—The most constant symptom in the entire study was the enlarged liver. This was present in eighty-three instances: in fifty-eight positive, seventeen negative and eight doubtful cases; or in forty-six legitimate children, thirty-three illegitimate children and in all four of the cases in which the legitimacy was not known.

Spleen.—Next in frequency to the enlarged livers and glands were the enlarged spleens, which were found in sixty-seven instances: in forty-five positive, fifteen negative and seven doubtful cases; or in thirty-six legitimate children, twenty-eight illegitimate children, and three of the four cases in which the legitimacy was not known.

Skin.—Skin eruptions were present in fifty-five cases, or in 51.89 per cent. of the inmates of the institution. In twenty-two, or 20.75 per cent. of the inmates, the eruption was diagnosed as of syphilitic origin, or, 40 per cent. of the cases of skin eruptions were syphilitic. In this study the younger the individual the more frequently were skin eruptions found. This was more particularly so with regard to the syphilitic skin lesions. The positive syphilitic skin eruptions were found in twelve positive luetin cases, eight negative luetin cases and two doubtful luetin cases. Twelve of the positive skin eruptions were found in infants during the first three months of life, or sixteen infants aged 1 year or less, the remaining six being found in infants aged up to 2 years and 5 months. The eight negative and two doubtful luetin cases with positive syphilitic skin eruptions were in infants aged 3 months or less. The syphilitic skin eruptions were found in five legitimate and seventeen illegitimate children.

The ten positive skin eruptions in the negative and doubtful luetin cases were associated with enlarged livers in nine instances, enlarged spleens in seven instances and enlarged glands in eight instances. Costal beading was present in three cases; flaring ribs in two; ridged or clawed nails in four; anal fissures in two, and wig, snuffles, and discharging ears in one instance each.

The skin readings were made after the other tests and consequently a greater time had elapsed after medications had been withheld. It was stated by the attendant that the skin eruptions had increased when medication had been stopped.

Fissures were present in four positive cases, five negative cases, and one doubtful case. The symptoms of snuffles, wig, scaling soles and palms and disturbance of the ears and eyes, mouth, and bones and joints were practically absent. Heart murmurs were found in four positive and in two doubtful cases. Bosses were present in twelve positive cases and in one negative case.

The earliest complete eruption of teeth was in an infant aged 1 year and 5 months, a legitimate child who had shown a positive reaction. The oldest infant with no teeth was 1 year and 3 months, and was an illegitimate child who had shown a positive reaction.

One child, an illegitimate child who had given a positive reaction, at 3 years and 8 months had only eighteen teeth and was 6 inches under size and 12 pounds under weight. Another child, who was illegitimate and had given a negative reaction, at 2 years and 6 months had fourteen teeth and was 9 inches under height and 7½ pounds under weight.

The anterior fontanel was closed in a legitimate child who had shown a positive reaction at 11 months and 8 days, and in another child in the same class the fontanel was still open at 2 years and 8 months.

NOURISHMENT

The nourishment in the institution consists of the ordinary foods usually given in such institutions, with a fair amount of milk. The infants and children up to 2 years receive the same mixture of milk, which contains, from analysis: total solids, 11.36 per cent.; ash, 0.49 per cent.; fat, 1.45 per cent.; protein, 1.62 per cent.; lactose, 7.8 per cent; acidity (as lactic acid) 0.69 per cent. This information was secured because of the number of diaper eruptions (intertrigo), in the very young infants. All the infants are given the same mixture, though the quantity varies. The older children, from 2½ years up, are given whole cow's milk as part of their daily rations.

ROUTINE MEDICAL CARE

The routine medical care of the newly born in this institution is of interest, especially in view of our laboratory findings. We were informed that twelve powders of 1 grain each of mercury with chalk are given to each infant, three powders daily for four days, and on the fifth day 2 drams of castor oil. Should the skin show any eruption, this treatment is followed by applying mercurial ointment, 33 per cent., in quantities approximately the size of the adult terminal thumb joint, on a linen belly-band. The baby is permitted to wear the same band for two or three days without changing; then the band is changed or the ointment renewed or discarded according to the response from the child. At the same time that the ointment is applied, or in those cases in which the infants have responded completely to the powders of mercury with chalk, syrup of ferrous iodid in doses of 5 drops three times a day is given in bottle feedings, for infants under 6 months of age. Over this period and, approximately until the age of 1 year the infant receives 10 drops three times a day in bottle feedings. At this age the infant is then transferred to a second nursery, in which he receives 5 drops three times a day in bottle feedings. Those not being bottle fed in this nursery do not receive the syrup of ferrous iodid. The older children, that is, those from 2½ on, receive no routine medication.

The symptoms which determine the mercury ointment treatment—for it must be remembered that the twelve powders of mercury with chalk are indiscriminately given to every child who is admitted into the infant nursery—are peeling of the skin and bleeding from these excoriations of the skin, especially of the heel, blisters on any part of the body, and snuffles. The skin manifestation of the heel seems, according to the attendant, to be the most prevalent symptom.

CONCLUSIONS

1. The Wassermann reactions and luetin tests were shown to have been performed accurately, as was proved by the controls made.

2. The negative Wassermann reactions in every case investigated may be explained by the intensity of the treatment to which each child had been subjected, or it may be that the bloods had not yet become positive.

3. The luetin test in this series proved of greater value as a diagnostic measure than the Wassermann reaction in detecting cases of congenital syphilis, and the clinical findings were of greatest value at that time when the value of the luetin was at its minimum, namely, in the first few weeks.

4. The effect of the iodids on the luetin reaction was again shown in this study. The lesion is characteristic and cannot be confounded with the normal positive luetin reaction.

5. Because of the ages of those examined and the character of the institution, this investigation afforded an excellent opportunity to study the various available means of detecting the existence of congenital syphilis. Seventy-four and six-tenths per cent. were infants up to the age of 2 years, of whom 41.6 per cent. were under 1 year of age.

6. Congenital syphilis was found to be relatively more frequent in the illegitimate than in the legitimate children.

7. Of course, this series does not constitute a fair criterion for a comparison of the Wassermann and luetin reactions. It does, however, afford a good idea of their relative values in connection with congenital syphilis at this time of life.

It must be remembered that the mortality from congenital syphilis is very great, and that those cases in which the earliest ravages of the disease are escaped are those of less severe infection, or are those in which the patient has been partially or thoroughly treated. This study, therefore, we believe to be a fair test of the relative merits of the two reactions under these circumstances.

8. The existence of skin eruptions of syphilitic origin in cases in which both Wassermann and luetin reactions were negative is of decided interest, and further emphasizes the necessity of employing all available means, including complete physical examination and laboratory tests, before deciding a case to be syphilitic or nonsyphilitic.

9. The skin eruptions were more frequent the younger the subject. This was especially true of the syphilitic skin eruptions; twelve of the total of twenty-two instances of it were found within the first three months of life. Ten cases of positive syphilitic skin eruptions were detected at this time in which the luetin reaction had been negative. The syphilitic skin eruptions seemed to be of greatest diagnostic value at that time when the negative laboratory tests are most likely.

10. With very few exceptions, all of the inmates of the institution were below the normal averages in weight, height, development and nutrition. This is of interest in view of the constitutional background of the inmates.

11. Enlarged livers, spleens and glands appeared to be the most constant of the clinical evidences of congenital syphilis.

12. The infrequency of the other clinical manifestations of congenital syphilis in this study, such as snuffles, fissures, wig, and scaling palms and soles, may have been influenced by the system of routine treatment in vogue in the institution as the cases were not followed by us from birth.

13. The incidence of congenital syphilis in this institution, as revealed by the study, was 83.96 per cent. Seventy-nine cases, or 74.53 per cent., were shown by means of the luetin reaction and ten cases, or 9.43 per cent., were shown by the clinical findings, revealing syphilitic skin eruptions. Many of the other cases classified as doubtful or negative had certain of the clinical symptoms of congenital syphilis, but not sufficient to warrant a positive diagnosis.

ABSTRACT OF DISCUSSION

DR. WALTER R. RAMSEY, St. Paul: Some interesting comments have been made on a series of cases under the Wassermann test in an article published about a year ago. I have looked into this matter and have found that we have been giving mercury in much larger quantities than is necessary.

DR. J. McKEY, Philadelphia: I am reminded of the practice of the late Alexander Buehler, who sent his patients for a Wassermann test to five different laboratories. He found three of the five absolutely unreliable.

DR. LAURENCE DEBUYS, New Orleans: No dark field examinations were made in this study. There are many cases in which positive luetin reactions are obtained in which the Wassermanns are negative. When the Wassermann reaction was first employed, I made a study in a series of about 250 instances in which the blood of the mother and child were examined. There were nine irregularities in this study, namely, the mother positive and the child negative, or vice versa. When Noguchi introduced his luetin test, I was anxious to determine the relative value of this test as compared with the Wassermann, and made a comparative study. In this study as many of the old cases were secured as was possible, particularly those previously classed as irregular, and it was shown that where the Wassermann had been positive in either the mother or the child in the previous study, both gave positive luetins. In making the luetin test it must be remembered that the luetin must be injected intradermally and not subcutaneously. It was of interest to note the small size of the children investigated in the study presented today. While this work does not offer a fair comparison of the relative reactions of the Wassermann and luetin, it does afford a fair comparison under the existing conditions. It must be remembered that the mortality in syphilitic infants is very high, and it is possible to have a greater number survive if the most prompt and thorough treatment is instituted. It is possible, therefore, that in this institution where inmates are from that part of society which is least moral that many of these infants may have survived because of the most energetic treatment employed in this institution, and that the inmates were in an inactive state of syphilis, which is the probable explanation of the negative Wassermann. It should be borne in mind that the luetin reaction is an allergy, while the Wassermann reaction reveals the existence of an active process. I believe the luetin test made properly is of value.

Local Health Authorities Can Quarantine Infected Persons.—The supreme court of Nebraska, in a recent case (Ex parte Brown, 172 N. W., 522) upholds the right of local health authorities to quarantine a person infected with venereal disease. A woman was arrested and on examination was found to be infected with a venereal disease. The health commissioner of Omaha ordered her to be detained in the detention home of the city for treatment until there was no further danger of communicating the disease. In a habeas corpus proceeding to secure her release from quarantine the court upheld the action of the health commissioner and denied the writ.—*Pub. Health Rep.* 34:1623 (July 25) 1919.

TRANQUIL TRACHEOTOMY, BY INJECTING COCAIN WITHIN THE WINDPIPE *

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As a general rule the opening of the trachea is accompanied by so much disturbance that there often ensues a scene which the elder dramatists would have described as one of "wild excursions and alarums." It is thus depicted by Clinton Wagner:[1]

> The introduction of the knife, together with the flow of blood, produces violent reflex action. The larynx rises and falls spasmodically and very rapidly, and the use of a knife or scissors is fraught with danger. The operator at this moment has need of all his coolness and presence of mind. Blood will find its way into the trachea and lungs, and death on the table from asphyxia may suddenly take place.

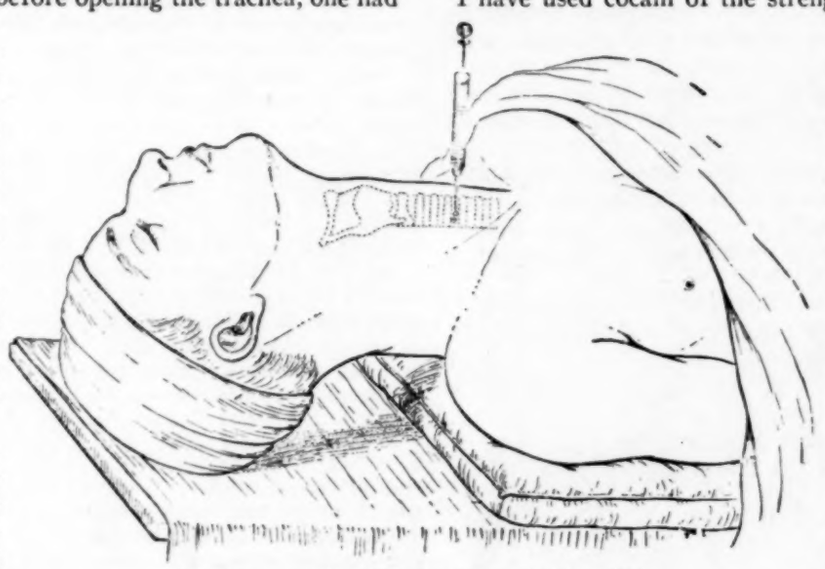
Apart from the risk of such a catastrophe, I remember the days when, before opening the trachea, one had to advise the audience to "take cover" behind the head of the operating table, as the cough started with the first entry of air into the windpipe frequently resulted in blood being shot out with such force that it bespattered the assistants, the walls and even the ceiling.

All this commotion can easily be avoided by the intratracheal injection of cocain in the way to be described. I acknowledge my indebtedness for the idea to Dr. Crosby Green,[2] who, in an article on "Thyrotomy for Cancer of the Larynx," describes how, before splitting the larynx, he injected a 1 per cent. solution of cocain through the cricothyroid membrane into the cavity of the larynx. He, it appears, is not in the habit of performing a preventive tracheotomy in this operation, and he makes no mention of injecting cocain within the trachea. If not the first to use it in tracheotomy, I think I am the first to employ it in England. This I did in the year 1913.

It is employed in the following way: An ordinary hypodermic syringe is charged with about 20 drops of a 2.5 per cent. solution of cocain. As soon as ever the tracheal rings are laid bare the syringe is grasped, as one does a pen, with the forefinger about 1 inch from the extremity of the needle, and with this the windpipe is sharply stabbed between two rings. The middle, the ring and the little finger of the operator's right hand are resting on the neck, and they prevent the point from penetrating more than one-fourth to one-half inch within the lumen of the trachea. The cocain solution is injected into the cavity of the windpipe, from 5 to 15 drops, and the needle is sharply withdrawn.

The liquid in the windpipe at once gives rise to a slight, stuffy cough. It causes no spasm or distress; and as it trickles down toward the region which endoscopists know to be the sensitive spot of this area, namely, the carina at the bifurcation of the trachea, this tickling cough soon ceases. If there is no great urgency, ten minutes should be allowed to elapse, the time being occupied by clearing the front of the trachea, checking all bleeding, preparing the tube and so forth. At the end of that time, the incision can be made into the trachea and the cannula introduced without pain, spasm or even the slightest cough, as quietly and smoothly as the original incision through the skin. The calm with which this proceeding takes place is in striking contrast with the agitated, hurried and often bloody and dangerous operation of former days.

I have used cocain of the strength of 2.5 per cent. for the simple reason that a 5 per cent. solution is usually at hand, and it has been convenient to dilute it one half. In children, a 1 per cent. solution and 5 drops would be sufficient.



Injection of cocain within the lumen of the trachea.

The method is employed with either general or local anesthesia. Local anesthesia is sufficient in adults when opening of the trachea is the only operation to be performed at one sitting. With procain used endermically and the cocain used in this way within the windpipe, there is neither pain, spasm nor coughing in performing a tracheotomy. A patient gets up from the table and walks back to his ward, to eat his usual meal.

I have records of twenty-five cases of laryngofissure in which this method has been used in performing the preliminary tracheotomy, and the numerous visitors to my practice have been able to see the calm which it secures. In these five years it has been used in dozens of cases of tracheotomy by myself, my assistants and the house men in King's College Hospital, with uniformly good results and no drawbacks.

It has not come my way to use it in children younger than 4 years, but, with the precaution I have advised, I think it can be safely employed. Nor have I had occasion to use it in sudden asphyxia—the "opération d'urgence." Most cases of extreme stenosis of the larynx ought to be provided against by a timely tracheotomy, and even when there is dyspnea, the few minutes entailed by this useful detail are more than compensated by the calm and security with which the operation can be completed.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Wagner, Clinton: M. Rec. **49**: 1, 1896.
2. Green, Crosby: Tr. Am. Laryng. Assn. **35**: 163, 1913.

ABSTRACT OF DISCUSSION

DR. FRANK C. ROSE, London, England: This morning I received a letter informing me that I had been elected to honorary membership in this Association. I should like to thank you all very sincerely for that honor. I recognize, of course, that the honor is intended for the society in London of which I happen to be secretary at the present time. I should also like to thank the Fellows of this Association for the great kindness and generous hospitality that has been extended to the visitors from my own country and others. We have heard much of American hospitality, but the reality surpasses my expectations. For a number of years past we have realized that any young man who wishes to become thoroughly efficient in the practice of laryngology and otology must study what is being done on this side of the Atlantic. We have read the papers published, we have had opportunity to meet certain of the American workers in London, and it only added to my own desire to come over here and see for myself what was being done. And now that I have come and have had opportunity to listen to your discussions and hear the various papers read, and seeing some of your operators at work—in addition to the pleasure I have also a feeling of regret—regret that I did not come before; regret that this is my first visit instead of the second or third visit to this side. In this department the American surgeons have a great past; this meeting alone shows how important the present is, and I am convinced that in the future lies the most splendid era for American work in this and other branches of medicine and surgery. And on my return home I shall endeavor to impress as far as I can on my colleagues of my own age and standing, and particularly on the younger ones, how important it is that they, if they mean to perfect themselves in their own branch of work, make a visit to this side and see for themselves what is being done.

It remains for me to open the discussion of a paper which is not here. To hold a postmortem without a corpse is difficult. Only the title, so far as I am concerned, remains to discuss, and I wish to assure Sir St.Clair Thomson that I like his title. It is a very good title: Tranquil Tracheotomy. My feeling is that if the patient will be tranquil, and the surgeon will be tranquil, two of the most important factors for success are already present. In the matter of detail, my own feeling coincides with that of Sir St.Clair Thomson, that in approaching the trachea it is advisable and convenient to divide the isthmus of the thyroid. That has been my own practice for a number of years.

DR. FERNAND LEMAITRE, Paris, France: For eight or nine years I have been accustomed to inject cocain in cases of tracheotomy exactly as Sir St.Clair has so well demonstrated. I may say that a tracheotomy done in this way is quite different from the ordinary tracheotomy we are accustomed to seeing. After the injection is made I wait a moment before beginning the tracheotomy, and I utilize this time in making the suture, in putting some catgut in, if necessary, and one or two stitches at the upper and lower part of the wound. Before the operation is quite finished, it seems we have forgotten one stage, and that is the opening of the trachea; but when this is done the operation is immediately finished.

DR. OTTO GLOGAU, New York: I first saw this method that Sir St.Clair described, the tracheotomy and the ligating of the isthmus, in the Bellevue Hospital about two months ago, and it is astonishing how easily the patients stand it and how little discharge comes from the trachea. I would also like to mention that in these cases the use of suction apparatus is advisable. It relieves the bleeding of the wound as well as the discharge.

DR. M. F. ARBUCKLE, St. Louis: I have had the pleasure of seeing several of these laryngeal fissure tracheotomies done, and it is marvelous to me. There is no cough, no excitement or worry.

SIR ST.CLAIR THOMSON, London, England: I am very pleased that this has been described before. I do not claim to be the Messiah of the subject, nor would I say that I am an apostle to the Gentiles, but I am very glad to spread the good news.

PHYSICAL RECONSTRUCTION APPLIED IN THE TREATMENT OF PULMONARY TUBERCULOSIS

FRANK BILLINGS, M.D.
CHICAGO

Physical reconstruction may be defined as continual treatment, carried to the fullest degree of maximum physical and functional restoration consistent with the nature of the disability of the patient, by the employment of all known measures of modern medical and surgical management, including curative, mental and manual work (in wards, workshops, schools, gardens and fields); physiotherapy (thermotherapy, electrotherapy, hydrotherapy and mechanotherapy, massage, calisthenics, gymnastics and the like), and sports, games and amusements indoors and outdoors.

The application of physical reconstruction in the treatment of soldiers disabled by illness and injury during the great war was a new policy of the Medical Department of the Army. The measure had a few advocates, some tolerant but doubtful friends, and many opponents in the medical department, including officers of the permanent military establishment and others holding temporary commissions.

The failure of many to recognize the therapeutic value of the measures enumerated is due chiefly to the fact that with the exception of the curative factors enumerated under physiotherapy (and of these electrotherapy, mechanotherapy and massotherapy have been too often exploited by unqualified people and by quacks), the medical profession as a whole has had little or no experience in the application of these additional forms of treatment of the sick and injured.

The profession has found no use for these curative measures because, as a rule, physicians and surgeons are satisfied with physical cure. The average physician rejoices when the patient with pneumonia has passed the crisis. Unless some unusual symptom attracts attention, he makes no investigation to ascertain whether the lungs and heart have regained normal function. The average surgeon is happy if his patient with a fracture of a long bone gets through without deformity or shortening of the lower limb, and the possible suit for malpractice is escaped. As a rule, he does not see to it that the function of the joints and muscles of the involved extremity are exercised and trained to restore function definitely.

Modern medicine and surgery must take heed of functional as well as physical restoration. The physician and surgeon must continue to have an interest in the convalescent patient and to prescribe the necessary measures in proper doses to insure restoration of function or to establish it as nearly as the nature of the disability permits.

The application of physical reconstruction in the treatment of the patient with pulmonary tuberculosis has been strenuously opposed by many conscientious and honorable physicians. The objections advanced are sound in the sense of the application of the measure embraced under physical reconstruction during the active and febrile stage of the disease. On the other hand, I maintain that, when indicated, physical and mental rest, even to the most absolute degree practicable, is as much a factor in physical and mental rehabilitation as physiotherapy, curative work or play when these agents are rationally called for.

Tuberculosis is an infection which, as a rule, is focal in character. The primary focus usually located in a lymph gland or glands is acquired, usually in childhood. Later in life the pathogenic agents take on added virulence, or the resistance of the tissues of the host to general or to wider local invasion is diminished or both conditions are present. The causes of increased virulence of the pathogenic invaders and the reasons for the lessened immunity of the host need not concern us in this discussion.

With more general invasion and involvement of the lungs, the course of the disease depends also on the degree of virulence of the invaders, including possible mixed infection, and on the degree of general and local tissue resistance of the host.

MEASURES THAT SHOULD BE APPLIED

Experience has shown that during the acute or active stage of pulmonary tuberculosis, rest as absolute as practicable is the best method of passive control of the disease. Unfortunately, with some patients the virulence of the invaders is so great that the most painstaking application of rest treatment does not prevent the involvement of new tissue and a final hopeless extension of the disease. We all recognize the advantages of pure night and day air, rational feeding, correct personal hygiene, including adequate nursing, proper sponge bathing, and the use of simple medication when needed during the active stage of the disease. The contention for and against the use of specific and nonspecific antiserums or antigens administered hypodermically or intravenously to increase the resistance of the host to the invading micro-organisms or to destroy the infectious agents is not germane to this discussion.

If the patient is fortunate, the active stage abates and in an indefinite time the patient reaches the stage of inactivity of the disease. The reward of improvement of the pulmonic disease by adherence to the rest treatment is associated, in the average tuberculous patient, by lessened tone of the tissues, especially of the muscles, and by relatively poor blood circulation. Inadequate blood and lymph circulation means lessened nutrition of the tissues generally, although the weight of the patient may not indicate it. Long physical rest begets mental unrest and discontent. In other words, the patient's physical disease is much improved, but the function of his mind and the circulatory and locomotor organs is far below the normal.

Until the blood and lymph circulatory organs function properly, cellular nutrition will remain low. Rationally we cannot prolong absolute rest beyond the active or febrile stage.

The second stage of treatment embraces alternating rest and *controlled* mental and physical exercise. Individual management is indicated throughout the whole treatment program. But in this second stage, the dosage of mental or physical exercise prescribed, and the frequency of the repetition, must be under watchful medical supervision. If the progress is favorable the bed rest periods become shorter and less frequent, and conversely the active period in chair and walk become longer and more frequent.

Now, it is during this transition period, between absolute rest and the ambulatory stage, or third period, of treatment that the wise physician will apply such physiotherapy as hydrotherapy and massage, and occupational therapy modified in kind and dosage to meet the needs of the individual patient.

The sponging with warm water and alcohol, admissible in the febrile stage, may become a sponge or spray bath in bed or in a chair, sufficiently cool or cold, to arouse physical reaction for the purpose of improvement of the lymph and blood circulation. Short periods of light friction massage of the extremities and, in permissible cases, of the skin of the trunk will also improve the circulation, the tone of the muscles, and the cellular nutrition.

Mental and manual occupational therapy should be applied as early as mental and physical activity is permissible. The problem is to divert the attention of the patient, by simple recreation, through reading, pictures, games, handicraft and the like, with a view to securing a genuine interest in the attainment of a worthy end. The end most certain to hold the attention of the patient and to claim his best efforts is his future vocation. Hence, the reading, the handicrafts, or the academic study chosen to occupy the patient, for the sake of diversion, should be of a character, if that is possible, which will lead by successive steps to the more purposeful training which he may take during the ambulatory stage of the disease. Chair and porch patients will be able to take increased periods of occupational exercise.

In addition to what may be termed purely diversional occupations, such as woodcarving and whittling, toy making, weaving, bead stringing and block stamping, the patient may take academic courses in English and other languages, including arithmetic, penmanship and the like, read textbooks on and practice stenography, typewriting, Morse telegraphy and radiotelegraphy, bookkeeping, banking, and the like.

If the application of these measures is properly controlled by adequate medical supervision, the recovery of the patient will be enhanced. The lowered morale incidental to homesickness, idleness and discontent, with all the retarding influence of these factors on the improvement of the patient, will be overcome by rationally applied curative manual and mental work.

When the patient has reached the ambulatory stage, all of the measures embraced under physical reconstruction may be applied with benefit to the tuberculous patient. But medical supervisory control must continue. Hydrotherapy in the form of the simple overhead shower or the hand spray may be applied safely and with great benefit by alternating from hot to cold for short periods. Few physicians realize the benefit and the ease and safety of the applications of the alternating hot and cold shower or spray baths. It is inexpensive and self applicable. The blood is made to flush the whole body, and in consequence aids in washing out toxic waste material and in the improvement of muscular tone and general nutrition. Pulmonary ventilation is improved.

The end-result is equivalent to considerable active exercise, like gymnastics or walking, without the attendant fatigue of the latter. For those physicians who object to hydrotherapy in the treatment of the hospital tuberculous patient, let me advise them to try it out with patients who have reached the afebrile stage and who show no tendency to hemorrhage.

Likewise rationally applied massotherapy will justify the expense of the necessary qualified personnel to apply this form of therapy too often reserved for the wealthy patient.

In the ambulatory period, occupational therapy may be applied in more diversified forms, either prevocational or vocational. Shop and outdoor pursuits, especially the latter, are applicable to the ambulatory tuberculous patient. The academic and commercial courses may be continued, or shop and trade courses in motor mechanics, motor driving, engineering, electrical wiring and the like, or gardening, including greenhouse cultivation, farming and stock raising.

Controlled recreation in the form of graduated walks, gymnastics, calisthenics and games indoors and out has an important place in the treatment of the convalescent tuberculous patient.

When the tuberculous soldier has reached the stage of arrest or inactivity of the pulmonary disease, he may be discharged from the army. No physician possesses sufficient knowledge to judge the degree of virulence of the infectious micro-organisms that remain in the lung tissue or in the bronchial lymph glands, or the status or degree of immunity of the general or local tissues of the host, to renewed activity and further tissue invasion by the infectious agent.

For the patient with arrested tuberculosis in civilian practice, the conservative physician desires to maintain and to improve the resistance of the host to the unfriendly parasites, by attempts to have the patient follow a rational hygienic life and, if the bank account permits, to spend seasons characterized by inclement weather at resorts where favorable climatic conditions permit one to live comfortably in the open air.

These measures are correct and rational enough; but why not adopt measures of physical reconstruction at this period of convalescence which will so completely rehabilitate the patient that he will be practically immune to further active tuberculous disease?

It will be necessary and an economy to hold the dependent tuberculous patient, whose disease has been arrested, in public sanatoriums for a period sufficiently long to permit the application of the needed physiotherapy, curative work and play until the desired physical and functional rehabilitation has been effected. During this period, real vocational training may be utilized profitably as occupational therapy. Dr. Philip King Brown has demonstrated that efficient training in pottery and tile making insures permanent cure and lucrative jobs in industrial life, and that a sanatorium may become practically self supporting if sensible trade training in productive enterprises is adopted as curative work. Dr. S. Adolphus Knopf[1] has recently written and lectured on the important subject of prevention of relapses in cases of arrested tuberculosis among soldiers. I heartily concur in the principles and practice announced by him.

Physical reconstruction is especially applicable to the patient with arrested or clinically inactive tuberculosis, and should have wider application in the final hardening process before the discontinuation of individual medical supervision.

RESULTS OBTAINED

The results of the application of these measures in the treatment of disabled tuberculous soldiers in the military sanatoriums have been so beneficial that it is my belief that curative work, massotherapy, hydrotherapy and regulated play will be applied hereafter practically, when local conditions permit, by all physiotherapists.

The number of tuberculous patients treated in the military sanatoriums from the beginning of the war to Dec. 31, 1918, was approximately 8,500.

The application of curative work was not applied in the treatment of soldiers suffering from tuberculosis as it was to the other types of disabled soldiers. The reason therefor was that two of the present sanatoriums were under course of construction, and were not ready for the reception of patients and for the application of measures of physical reconstruction until late in 1918.

All of the seven military sanatoriums utilized for the treatment of tuberculous patients have excellent facilities for the application of occupational therapy.

During April, 1919, there were approximately 6,000 tuberculous patients in the seven military sanatoriums. Of those who took curative work, 2,941 were occupied with the handicrafts and arts, 339 took ward academic instruction in languages and the like; 1,932 received training in commercial and professional subjects; in technical courses including carpentry, shoe repairing, motor mechanics, agriculture, gardening, stock raising and the like, and 725 utilized recreational play in and out of doors. The sum of these figures gives the total enrolment for the month. The total number of patients who took curative work was less than the last figure because some patients were enrolled in two or more curative work occupations.

Finally, it must be recorded that the almost universal testimony of the commanding officers of the hospitals, the ward surgeons, the educational personnel, and the patients is to the effect that curative work in wards, schools, shops, gardens and fields is of the greatest psychologic and material value in the treatment of pulmonary tuberculosis.

Tribute must be paid to the fine women who as reconstruction aides in occupational therapy made the ward training in the arts and crafts, in academic and commercial study, a success. The occasional misfit among them does not militate against the great value of their presence and service in the wards for the benefit of these disabled soldiers.

The chief of the educational service and the personnel of instructors have given wholehearted qualified service, splendidly cooperating with the ward surgeons in the work. A few ward surgeons have not subscribed to the principles involved. They are a small minority, who would become advocates probably of physical reconstruction under a favorable environment.

122 South Michigan Avenue.

1. Knopf, S. A.: Prevention of Relapse in Cases of Arrested Tuberculosis Among Soldiers, J. A. M. A. **72**: 539 (Feb. 22) 1919.

Prevention of Ill Health.—An essential factor in any scheme for the improvement of the public health is the need for enlightenment of the people on health subjects. They must be taught how to live healthy lives; how disease in its early stages can be recognized, and how the spread of the infectious diseases can be avoided. Undoubtedly expenditure on education will be amply repaid by a saving in the cost of treatment of persons who have become ill through ignorance of how to keep well. No sanitary problem was ever solved by caring for its victims. Education may be provided either by a health bulletin, filled with trite sayings and striking pictures, issued periodically, containing in pithy language essential points in the prevention of ill health. Popular lectures should be given; and cinema films, dealing with health subjects, should be shown in the schools.—*Medical Officer* **22**:52 (Aug. 16) 1919.

PROCTOLOGY IN A WAR HOSPITAL*

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DETROIT

When base hospital units were being organized to accompany the American Expeditionary Forces, I joined Unit No. 17 (Harper Hospital, Detroit) with the hope of being of service to the Army in a general way and, perhaps, having occasional demands made on my special knowledge of enteroproctology.

When our unit arrived in France early in July, 1917, we were stationed in the city of Dijon, the capital of ancient Burgundy. This city was located on the main railroad line over which the bulk of the American troops had to pass from the base ports to the training centers and fighting front. Many thousands of troops were encamped and billeted in the villages surrounding Dijon, and it was a very important center of the American activities.

A great deal of construction work was carried on; immense warehouses and depots for quartermaster, ordnance and the supplies of other departments were being erected by thousands of engineers and labor troops. Heavy work, continual drilling and training, coarse foods and inadequate latrine facilities were some of the factors which very soon indicated that in our hospital at least, the proctologic service would be not an inconsiderable one.

Before the Americans were actually in the trenches, the base hospitals, which had been established early, were fairly well filled with patients suffering from the ordinary diseases encountered in civilian activities.

The work of the medical staff was subdivided so as to render any special skill possessed by its members available for all patients who required it. My service, embracing abdominal surgery and proctology, consisted, during this phase of hospital activity, of the treatment of hernia, appendicitis, rectal and colonic diseases. The work was so classified that individual wards were devoted to each of these classes of disease.

The vast majority of cases of appendicitis were of the acute variety, many of which were suppurative and not a few ruptured. When one stops to recall that our patients were all young men of the age when appendicitis is most commonly found and their living conditions were such as to intensify any predisposition to that disease, the frequency with which appendicitis affected our boys was not unusual. Patients who were tired and hungry and had plainly been sick for some time before the seriousness of their condition was recognized, were taken off troop trains after a two or three days' journey from the sea port, in a box car, with a straw-covered floor.

Other patients, suffering from ruptured appendixes and general peritonitis, were brought in by ambulance from camps from 30 to 50 kilometers distance.

The number of hernia cases was exceptionally large. One could always tell when a new convoy of troops arrived from the United States by the flood of patients suffering from hernia and chronic hemorrhoids, who would arrive at the hospital in groups of from fifteen to fifty at a time. So many of these patients gave histories of long continued existence of hernia, hemorrhoids, or both, that it was perfectly clear to us that somewhere in the chain of physical examinations in the United States there was a weak link or two.

Our acute proctologic cases consisted of thrombotic hemorrhoids, fissures, abscesses and impactions. It is interesting to note at this point that the rarest proctologic condition, with the exception of carcinoma, was that syndrome known as pruritus ani.

In the operative treatment of all cases of hemorrhoids, acute or chronic, fissure, polypi and most cases of abscess and fistula, the anesthetic of choice was the infiltration of 0.25 per cent. solution of procain. All patients were given an enema the night preceding operation, and this was repeated the following morning. A quarter grain of morphin and 1/150 grain of atropin were administered hypodermically forty-five minutes before operation. Skin sterilization was accomplished by the use of alcohol followed by iodin. The patients were placed in the exaggerated Sims position.

External thrombotic hemorrhoids were removed by infiltration, excision, evacuation of clots, and closure without suture. Prolapsing internal hemorrhoids were removed by the author's technic of high ligation and excision. Fissures were treated by incision or excision, depending on their extent and chronicity.

Abscesses, when very extensive, were sometimes punctured under local anesthesia, allowed to drain and contract for a couple of days, and then opened to their widest dimension.

Fistulas were incised if simple, or their tracts excised, if chronic or multiple. It is interesting to note in this connection that at one time I had under my care seven patients suffering from old chronic sinuses resulting from sacral or coccygeal dermoid cysts. All of these patients claim that the condition existed when they were still in the United States and that medical officers knew of the condition, but allowed them to go to France, nevertheless, and clutter up hospital beds needed for more urgent cases.

Our work was so well organized that we were able to handle our cases of rectal surgery with much expedition. Under local anesthesia, we handled four cases an hour in the operating room, and had the majority of our patients on their feet and in the mess line on the third day. Rectal patients do much better on their feet and outdoors, than lying around the hospital ward.

As the American forces took their places on the fighting fronts, the character of the work in an advanced base hospital, such as ours, took on a different aspect. All patients with hernia and chronic hemorrhoids were evacuated to hospitals nearer the sea ports and farther removed from front line activities.

The proctologic surgeon along with other specialists took over a certain number of general surgical wards, but in addition took special charge of all wounds involving the intestinal tract. All types of ammunition and projectiles were responsible for these wounds. Direct penetrating wounds of the abdomen, when the patient's condition did not contraindicate operation, called for laparotomy, location and closure of intestinal wounds.

In extensive tears of the intestine, it was found better in some cases to perform temporary enterostomy. In penetrating gunshot wounds of the rectum, simple cleansing and drainage of them sufficed. On the other hand, extensive lacerated wounds in which the sphincter was involved would call for temporary colostomy until the lower wound could be repaired, if at all.

* Read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

In wounds of the buttocks communicating with the rectum, it was occasionally found necessary to convert these into open or gutter-wounds. After irrigating for several days with surgical solution of chlorinated soda (Carrel-Dakin solution), we were able to accomplish secondary suture with marked success.

It might be mentioned in this connection that we were able to follow the same procedure with a number of our fistula cases. The use of the Carrel-Dakin solution, with daily bacterial counts in the surgical treatment of fistula, is a valuable addition to the treatment of this condition. It is surprising how a wound in this locality can be cleaned and kept clean if the Carrel-Dakin technic is carefully carried out. Secondary suture of fistula wounds will, I believe, become more commonly practiced when the employment of this technic becomes more generally known.

During several epidemics of dysentery, the proctologist became of great service to the internist in the differential diagnosis between the various types of dysentery and between these and other colonic diseases. Several cases of true amebic dysentery were recognized by smears taken from rectal and colonic ulcers and examined on the warm stage.

The possession of a sigmoidoscope by a medical officer skilled in its use was of great advantage to the base hospital with which this officer was stationed.

On account of conditions mentioned above, fecal impaction was frequently encountered. The use of 25 per cent. hydrogen peroxid enemas proved to be of the greatest service in their treatment.

As is well known, mustard gas burns were found most frequently in the region of the genitals and buttocks. The treatment of these cases fell to the lot of the proctologist. Alkaline baths, free opening of blebs and blisters, exposure to sunlight, which was one of our rarest therapeutic agents in France, and protecting with zinc oleate or stearate proved very efficacious in our hands.

As has been mentioned above, pruritus ani was one of the rarest diseases encountered among our troops. Pruritus ani is supposed to be caused by practically every disease affecting the anal region; but in spite of our large proctologic service, pruritus was a condition conspicuous by its absence.

Those soldiers who did complain of itching in the region of the rectum and who did not present evidence of parasitic infestation were found to be suffering from proctitis, fistula, fissure or ulcer. The indicated surgical treatment for these conditions very quickly cured the pruritus.

In all of our proctologic work, the employment of local anesthesia was the greatest single factor in lessening the length of a soldier's hospitalization. He was returned to his command in from one-third to one-half the time ordinarily required for convalescence from operations performed under general anesthesia. As every day saved in a soldier's absence from duty was of direct assistance in keeping up the man power of the Army, local anesthesia in proctology did its little bit in winning the war.

When a surgical team was sent from the base hospital to the front, medical officers representing all of the different specialties took their turn on the team. The proctologist was no exception to the rule, and on account of his experience in abdominal surgery, he served a very useful purpose. Whether called on to remove a piece of shell from the brain, to sew a lacerated pleura, to remove a tight tourniquet and save a limb, or to perform the most delicate of intestinal repair, he always gave the best that was in him.

The attention to detail in after-care, which the surgical specialist is wont to give in his own special field, always stood him in good stead when doing his share of general war surgery in an advanced hospital unit.

After all, the proctologist, in whatever he did in the medical service during the war, represented only one class of specialist. They were all alike; although most of them were beyond the so-called military age, they were all willing and anxious to do anything in the realm of medicine and surgery to help win the war. Whether acting as interns or consultants, they were always medical officers in the Army of the United States, and always tried to be good soldiers.

ABSTRACT OF DISCUSSION

DR. ALOIS B. GRAHAM, Indianapolis: There is no essential difference between military and civil practice in the ordinary proctologic cases. The same fundamental principles that govern the one govern the other. It is very true, as Dr. Hirschman has said, that a surprisingly large number of proctologic cases occupied beds in base hospitals that could have been used to much better advantage in caring for soldiers suffering from gunshot wounds. We did most of our proctologic work in Base Hospital No. 32 under local anesthesia. In a few cases we employed nitrous oxid and oxygen. We also used a modification of Depage's anesthesia (ethyl chlorid, ether and chloroform) and it proved most satisfactory.

DR. D. C. MCKENNEY, Buffalo: Dr. Hirschman has covered the subject of war proctology very fully, and I agree with everything he said. There is absolutely no question that many men, who ought not to have gone, slipped into the army and were sent abroad with their rectal conditions not remedied. Each man so disabled took one man from the fighting front, besides requiring the employment of other men needed for other work to take care of him at some hospital. I saw very little constipation in the army and I am not sure that the squatting position during defecation, that was employed so generally all over France, had something to do with it. About the wounds, although many cases involved the rectum, an interesting observation was that with most horrible wounds of the buttocks, the rectum frequently escaped injury. Wounds that involved the rectum very often also involved the bladder, so that it was necessary to do a laparotomy and repair the wounds inside the abdomen as well as do a colostomy to allow the rectal wound to heal. Frequently it was necessary to add a suprapubic bladder drainage.

DR. JOHN L. JELKS, Memphis, Tenn.: A boy with an enormous mass of hemorrhoids, bleeding, oftentimes inflamed, passed the board A-1, went to France and fought and bled—but not from bullet wounds. Another man with a tuberculous fistula also passed the board. He was in the hospitals for months, an expense to his country, a burden to the shipping capacity, and finally, after months of no service, at an expense to his government, with loss of health to himself, he returned to Memphis, and I have been treating him ever since for the tuberculous fistula. These two cases illustrate how little attention is paid rectal conditions. I have known of several men who went into the army with infectious diseases of the rectum and colon. Not only were they an expense to the army but they were a menace to those with whom they came in contact. Therefore, I emphasize the importance of not allowing these men to go unexamined.

DR. DWIGHT H. MURRAY, Syracuse, N. Y.: In my address as retiring chairman of this section I recommended that a committee of five members be appointed, and a committee was appointed consisting of Martin E. Rehfuss, chairman, Dr. Dudley Roberts, Dr. William Gerry Morgan and myself. We went to Washington for the purpose of putting this thing before the army medical officers, and we did it. The final result was that thirty-two gastro-enterologists and proc-

tologists were appointed. Dr. Graham was one of them. Some of them were proctologists, but most of them were gastro-enterologists, and one was assigned to each base hospital in this country. There is no doubt that the army could have done much better if it had appointed a proctologist with each gastro-enterologist.

Dr. J. Coles Brick, Philadelphia: I wish to relate an instance which I think would be a proper basis for a plea that this society make in Washington, as a matter of record, in case of a future war, for the appointment of a reference board for the examination of rectal cases, and I will mention a case which I think will justify it. A man was passed in Class A and he was ready to go to camp when he made the statement to his physician that he had a marked rectal prolapse. The examining surgeon failed to locate any rectal trouble. The man came to me and I gave him an enema in order to demonstrate the degree of prolapse, and found a procidentia. The rectal wall came out four inches, making eight inches outside of the anal margin. I gave him a certificate stating that this could be produced at will by giving an enema and having him bear down. The examining surgeon declined to accept it, still putting him in Class A, unless I would make an affidavit that he was unfit under military conditions, which I did. In other words, "he passed the buck." Now, it seems to me if this society sees fit to make certain recommendations to the authorities at Washington for the appointment of a reference board to determine the rectal conditions with reference to military service it would be apropos.

Dr. A. Chartier, Sorel, Quebec, Canada: I cannot let this occasion go by without telling you the way we acted in Canada, especially on rectal cases. The instructions received by the examiners were that men suffering with rectal diseases, such as hemorrhoids and fistulas, should not be placed in class A; and, therefore, they could not go in the fighting line and become, if I may put it that way, a burden to the hospitals at the front. The men were placed in classes B, C and E, depending on the seriousness of the trouble. As for being in the trenches and unfitted for the work by rectal troubles, I believe that very few were there, because the medical boards all through our country had received instructions on the classing of men and the examination of the rectum was never neglected.

Dr. J. Dawson Reeder, Baltimore: In defense of some of the surgical records, I feel that perhaps a little injustice has been done us. I was a member of the Medical Advisory Board, No. 1, of the state of Maryland, and have been limiting my practice to proctology for at least ten years. I had nothing to do with the assignment, but was assigned as a genito-urinary expert on this board, and a gynecologist was assigned to make the general inspection, carry out the orders of the War Department, which included the inspection of the anorectal region. Some of the mistakes that have been presented here today were due to the faulty assignments in the various medical advisory boards throughout the country.

Dr. Louis J. Hirschman, Detroit: If a criticism of the method of examinations seems to be implied in the paper it was absolutely meant as a criticism—not a criticism of the individual medical officer who did his bit, whether he did it on an examining board or whether he did it on the front line, but a criticism of our military methods. The War Department was warned by a committee sent by this section, as Dr. Murray has told you, and instead of heeding the warning given early they did not profit by it, and "by their fruits you shall know them." Every man who was in a base hospital in France will tell you the same story that I told you, that we had beds littered up with rectal cases that should have been taken care of at home. Class C men should have been made into Class A men by being operated on at home and then sent over, and they would have saved a great loss of man power. So far as our duty in the matter is concerned, it is very clear. It is up to us, in some way, shape or manner, perhaps through our delegate who represents the section in the house of delegates, to bring up some sort of a resolution calling the attention of the War Department to the fact that through our histories received from patients we discovered that many of them were not examined at all for rectal diseases, and that those that were examined were examined very superficially. I have had officers tell me they were examined by sergeants who were not even medical men, and a note was made on the medical history. We should ask for a recommendation of this kind, that a proctologist should be appointed for each training camp for medical officers, and if he does not do another thing he should teach the medical officers the way to make a proper examination of the rectum and the reason for such an examination. By showing figures which can be compiled very easily from the Surgeon-General's report of the thousands of operations done in France, which should have been done at home, we can make our point. We can instruct men who are assigned to rectal operations how to do them, and in that way we can get some service for our men in the next war. In the British army the examination was very thorough. In the American army, however, we would not put a man with prolapsing hemorrhoids or any rectal disease even in Class B, because our Class B men were sent in the service of supply that had to do with supplies and transportation, and if you can imagine a Class B man with a big prolapse of the rectum carrying a big 100-pound sack of flour on his back, you will see he was working just as hard in the Class B service as in Class A. So I still maintain that the complete treatment and the complete relief of proctologic conditions should take place not anywhere near the zone of war, but at home before the men are sent away.

CIRCUMSCRIBED PHLEGMONOUS GASTRITIS (SUBMUCOUS ABSCESS OF THE STOMACH)

REPORT OF A CASE WITH RECOVERY AFTER RESECTION OF THE STOMACH

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Phlegmonous gastritis is one of the rarest of diseases encountered by the abdominal surgeon. It is almost always fatal, and in only a very few cases have surgical measures been employed for its relief. Indeed, so far as I have been able to learn from a fairly thorough review of the subject, the case I am about to report is only the second in medical literature in which radical cure of the disease, by resection of the stomach, has been resorted to.

REPORT OF CASE

History.—C. E., a girl, aged 19, unmarried, who was referred to my service at the South Baltimore General Hospital by Dr. J. A. Miller of Baltimore, and whose family history was uneventful, had enjoyed good health, with the exception of frequent attacks of tonsillitis, up to the time of the onset of the present trouble. In January, 1918, she was operated on at another hospital for chronic appendicitis. At this operation, which was performed through a McBurney incision, the appendix was found to be very much adherent. The upper abdomen was not explored at this time. For about three years previous to her admission to the hospital, the patient had suffered with pain after eating, the distress coming on sometimes even while eating, and lasting from about one half to three quarters of an hour after meals. The pain was confined to the epigastric region, although there was said to be a slight "pulling" pain in the right iliac fossa previous to the operation for appendicitis. Following the operation, this pain in the right side disappeared, but the stomach symptoms above described still persisted.

For the six months previous to admission, pain in the epigastrium had been constant, although, as a rule, it was made

worse by eating. During this period there had been at least five severe exacerbations, with a great deal of pain, lasting usually about one week. Throughout the entire illness there had never been any nausea or vomiting. April 2, the patient was taken with sudden excruciating pain while on the street car coming from her work, so that she had to be taken home in a taxicab. Rest in bed and anodynes did not ameliorate the pain, and when the patient was seen, April 4, in consultation with Dr. Miller, the pain was so sharp that she could not move. There was a slight evening fever at this time, which continued until the patient was admitted to the hospital, April 7, when the evening temperature was 101. Her pulse, however, was normal.

Examination.—There was an oblique scar over McBurney's point. No tenderness was present in the lower abdomen. Pressure over the gallbladder region, even when very light, caused much pain. There was marked rigidity over the gallbladder area, and, indeed, over the entire epigastrium. A tentative diagnosis of cholecystitis was made.

Operation and Result.—The operation was performed, April 9. An incision was made in the right rectus, about 1 inch to the right of the midline, beginning a short distance below the costal margin and extending almost to the umbilicus. As soon as the peritoneal cavity was entered, the stomach, which was much distended with gas, projected into the wound. It was at once seen that the pyloric end of the stomach was the seat of a large tumor mass. The area of the tumefaction extended from the pyloric ring for a distance of about 2½ inches, being more marked along the lesser curvature than along the greater. The external surface of the stomach over the growth was covered with numerous adhesions, and showed also, along both curvatures, a chain of enlarged glands. The gallbladder was normal except for some adhesions which extended down to the region of the pylorus.

The whole pyloric mass was about the size of a lemon, and firmly adherent to the surrounding structures—transverse colon, pancreas, etc. The exact nature of the growth could not be determined from external examination. The general feel was exactly that of an advanced carcinoma of the pylorus. In view of the patient's age and also of the extensive inflammatory reaction, it was thought quite possible that it might, however, be an enormous gastric ulcer with extreme inflammatory reaction. At any rate, it seemed wise to attempt removal of the lesion by resection of the stomach. This operation was carried out with difficulty, owing to the extensive adhesions and the extreme vascularity of the tissues. The technic employed for the operation was that recommended by Balfour. The duodenum was severed and the distal end inverted. The proximal cut end of the stomach was then anastomosed directly into the side of the jejunum, the loop of bowel being carried up in front of the transverse colon. This part of the operation presented no unusual difficulty.

The patient left the table in good condition, the pulse being 96. Recovery from the operation was uneventful. The patient is now enjoying perfect health and is entirely free from digestive symptoms of any kind.

Pathologic Report.—The specimen consisted of the pyloric end of the stomach and about 2 cm. of duodenum, the length of the entire specimen being about 11 cm. The external surface of the stomach was covered with numerous adhesions. Along the lesser curvature was a thick fringe representing the greatly infiltrated lesser omentum. Several enlarged lymph glands were seen on both curvatures. On opening the resected portion of the stomach along the greater curvature, a tumor-like mass was seen to arise from the lesser curvature (Fig. 1). It was sessile, its base measuring about 6 cm. in length. From this, the tumor, which was somewhat pear-shaped, projected for a distance of 3 cm. into the lumen, so that it almost touched the opposite curvature. A small channel, however, measuring about 1 cm. in diameter, was left between the tumor and the greater curvature (Fig. 2). The surface of the tumor was perfectly smooth. The larger end, pointing toward the cardiac end, was rather plum-colored, while the mucosa covering the narrowed portion, extending toward the pyloric orifice, was pale and macerated. There was no evidence of gastric ulceration, the mucosa covering the mass being absolutely intact. The consistency of the tumor was soft, with an indefinite sense of fluctuation.

Fig. 1.—Resected portion of stomach opened along greater curvature, exposing the mass, which is seen arising from the lesser curvature. At the left is the removed portion of the duodenum. Note thickening and infiltration of stomach wall.

On making a longitudinal section into the tumor, it was seen at once that it contained a large cavity filled with thick, whitish pus (Fig. 3). The inner dimensions of the abscess cavity were 4 by 3 by 3 cm. The enveloping wall varied in thickness. Internally it was very thin and crustlike, while the floor of the abscess merged into the wall of the stomach, which was enormously infiltrated, measuring as much as 2 cm. in places. The inner lining of the abscess cavity was shaggy and necrotic looking.

Microscopic Examination.—Microscopic examination presented a striking picture. Beginning at the extreme cardiac end of the resected portion of the stomach, its wall was practically normal. As the abscess cavity was approached, however, it was found that the submucosa showed increasing infiltration, with polymorphonuclear leukocytes and small round cells. This infiltration was intense immediately surrounding the cavity. The latter, it was easy to see, was developed in the submucous layer of the stomach wall, which seemed to be bifurcated, the mucosa and muscularis mucosae being raised to form the roof of the abscess, the muscular and serous layers forming the floor of the cavity. The immediate lining of the abscess wall was an irregular zone of inflammatory exudate, made up chiefly of leukocytes and round cells, the former predominating (Fig. 4). Along the floor, however, were broad areas showing beginning cicatrization, indicating the probable chronicity of the condition.

While the phlegmonous process was most marked in the submucosa, the infiltration extended also, to a certain degree, into the other coats. The mucosa overlying the abscess showed little change except a slight infiltration of the deeper layers and considerable hemorrhage in the superficial portions. The gland epithelium was normal in appearance. The muscular coats showed a considerable degree of involvement, especially in the form of clumps and chains of round cells extending along the lymph spaces.

TYPES OF THE DISEASE

Types of phlegmonous gastritis are encountered in the literature under various names ("submucous abscess of stomach," "gastritis purulenta," "phlegmon of stomach," etc.). The designation adopted in this paper—phlegmonous gastritis—is the one most commonly employed, in spite of some theoretical objections. The disease occurs in two forms, the diffuse and the circumscribed. In the former, as will be described later, the phlegmonous process involves a greater or less extent of the stomach wall in a diffuse manner, while in the circumscribed variety the disease is localized, with the formation of one or more abscesses. My own case is obviously of the circumscribed type.

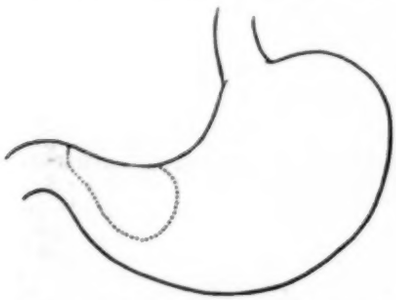

Fig. 2.—Seat of origin of growth and manner in which it infringed on cavity.

HISTORY

According to Leith,[1] the first description of phlegmonous gastritis was given by Varandaeus as far back as 1620 ("Tractatus de Morbis Ventriculi"). Other early reports were those of Borel ("Opera," 1656), Sand (1701), and Bonet (1700). It is interesting to note that all of these earlier observations on phlegmonous gastritis had to deal with the circumscribed variety of the disease. Indeed, it was not until 1839 that Andral[2] gave what seems to have been the first description of the diffuse type. From that time, cases of both varieties have been reported at intervals. In 1861, Raynaud[3] was able to collect twenty-one instances of both types, while, in 1907, Bovée[4] estimated that seventy-five cases of both varieties had been observed. More recent figures for the total number of cases, as given by Leith in 1910 and Jensen[5] in 1911, are 100 and 131, respectively. In an earlier paper, published in 1896, Leith[6] stated that references were to be found to thirty cases of the circumscribed abscess group. These figures, however, include quite a number of questionable cases, such as the one of Deininger.[7] To illustrate the variance of statistics on this point, Mayo Robson and Moynihan[8] were able to find only eleven undoubted cases of the circumscribed type up to 1904. It is certainly true, as has been stated, that not over 20 per cent. of all cases of phlegmonous gastritis are of the circumscribed variety, and it is doubtful whether the total number of authentic cases of the latter exceeds twenty, or at most twenty-five.

PATHOLOGIC ANATOMY

Little need be said concerning the pathologic anatomy except to emphasize the fact that the seat of the purulent disease in all cases seems to be the submucous coat. The mucosa is, of course, hyperemic and mildly infiltrated with inflammatory products, and may, as in our case, be more or less hemorrhagic. In some of the reported cases, one or more openings, usually very fine, have been found on the mucosa, overlying a circumscribed abscess, suggesting the appellation of "carbuncle of the stomach." The infiltrated submucosa is thickened, edematous, and usually a pale, yellowish white.

Microscopic examination reveals enormous numbers of polymorphonuclear leukocytes and round cells. In cases of circumscribed abscess, the purulent process is localized, with the formation of an abscess cavity of variable size. The mucosa and the muscularis mucosae are lifted away from the muscularis by the pus accumulation, as in the case I have reported. The muscularis is practically always the seat of at least a moderate degree of cellular infiltration, especially along the lymph channels. According to Leith, the serous coat is often unaffected. In my own case, however, as well as in a number of others, there had been an intense peritoneal inflammatory reaction, with widespread adhesions. The lymph glands along both the lesser and greater curvatures of the stomach may be much enlarged.

The pathology of this disease, its tendency to chronicity in certain cases, and the fact that the principal involvement is in the submucous coat suggest a possible relationship with linitis plastica. This disease, like phlegmonous gastritis, may be either diffuse or circumscribed, the latter type involving the pyloric region most frequently. Although these various facts are suggestive, no direct relationship, so far as I am aware, has as yet been traced between these two diseases.

ETIOLOGY

The immediate cause of the disease is an infection of the stomach wall, the organism concerned being almost always the streptococcus. Mixed infection is not uncommon, the secondary organism being usually the colon bacillus. Just how the organism makes its entry into the gastric tissue is still a point of discussion. Most cases are of the so-called primary or idiopathic type, only a few being secondary or metastatic, that is, consequent on such diseases as cancer, ulcer of the stomach, or puerperal fever. The streptococcus, according to the work of Lubarsch[9] and Dörnberger,[10] is a normal inhabitant of the stomach, in spite of the

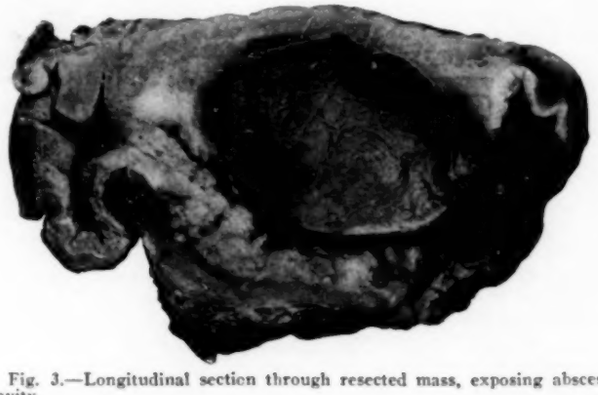

Fig. 3.—Longitudinal section through resected mass, exposing abscess cavity.

1. Leith: Edinb. Hosp. Rep. **4**: 51, 1896.
2. Andral, Gabriel, quoted by Leith: Clinique médicale, Maladies de l'abdomen 1839, Ed. 4, Crochard & Cie; Fortin, Masson & Cie., 2.
3. Raynaud: Bull. Soc. anat. de Paris **6**: 62, 1861.
4. Bovée, J. W.: Tr. South. Surg. & Gynec. A. **20**: 378, 1907.
5. Jensen, J.: Phlegmonous Gastritis, Hospitalstidende **54**: 505 (May 10) 1911; abstr. J. A. M. A. **57**: 520 (Aug. 5) 1911.
6. Leith, in Allbutt and Rolleston's System of Medicine **3**: 419, 1910.
7. Deininger: Deutsch. Arch. f. klin. Med. **23**: 624, 1897.
8. Robson, A. W. M., and Moynihan, B. G. A.: Diseases of the Stomach and Their Surgical Treatment, Ed. 2, New York, William Wood & Co., 1904.
9. Lubarsch, quoted by Hermann: Ergebn. d. allg. Path. u. path. Anat., 1896. Hermann: Ueber die Phlegmons der Magenwand, München, 1912.
10. Dörnberger: Jahrb. f. Kinderh. **35**: 395 (quoted by Hermann).

presence of the slightly acid gastric juice. Whether the organism finds a portal of entry in some abraded or otherwise weakly resisting point in the gastric mucosa, or whether the infection is blood borne, according to our modern conception of focal infections cannot be stated in the present state of our knowledge.

The disease may occur at any age, the youngest patient in Leith's series being 10, and the oldest 85. It is far more frequent in men than in women, Oser[11] giving the proportion as eight to one, Leith as between three and four to one. Dietetic errors and alcoholic excess have been considered by some as important etiologic factors, but their influence is very questionable.

SYMPTOMS

In the great majority of cases, the onset has been quite sudden. Pain is perhaps the most prominent symptom, being present in at least 75 per cent. of the cases (Leith). It is usually described as pressing in character, but may be violent. It is located chiefly in the epigastrium. Not infrequently, however, it may be more marked on one side or the other, usually the right, as in our own case. Associated with the pain there is often much tenderness and rigidity, so that it is easy to understand why the picture may simulate that of cholecystitis. Vomiting is described as an almost constant symptom. Leube is quoted as saying that "it was absent in only one of the cases recorded, and even then there was a disposition to emesis."

It is interesting to note, therefore, that in my patient vomiting had not occurred throughout the entire course of the illness. The vomiting may persist throughout the malady, or it may cease after a day or two, perhaps reappearing with the onset of peritonitis.

Vomiting of pus is rare, but may occur. In one case, that of Deininger,[7] 0.25 liter (quart) of pus is said to have been vomited, recovery ensuing. The correctness of the diagnosis in such a case is obviously open to question. Fever is a common but not invariable symptom.

The later symptoms merge into those of the peritonitis which almost always supervenes. The pain spreads over the abdomen, the fever rises, the pulse becomes more rapid, the abdomen becomes tympanitic, delirium may occur, and the patient gradually succumbs.

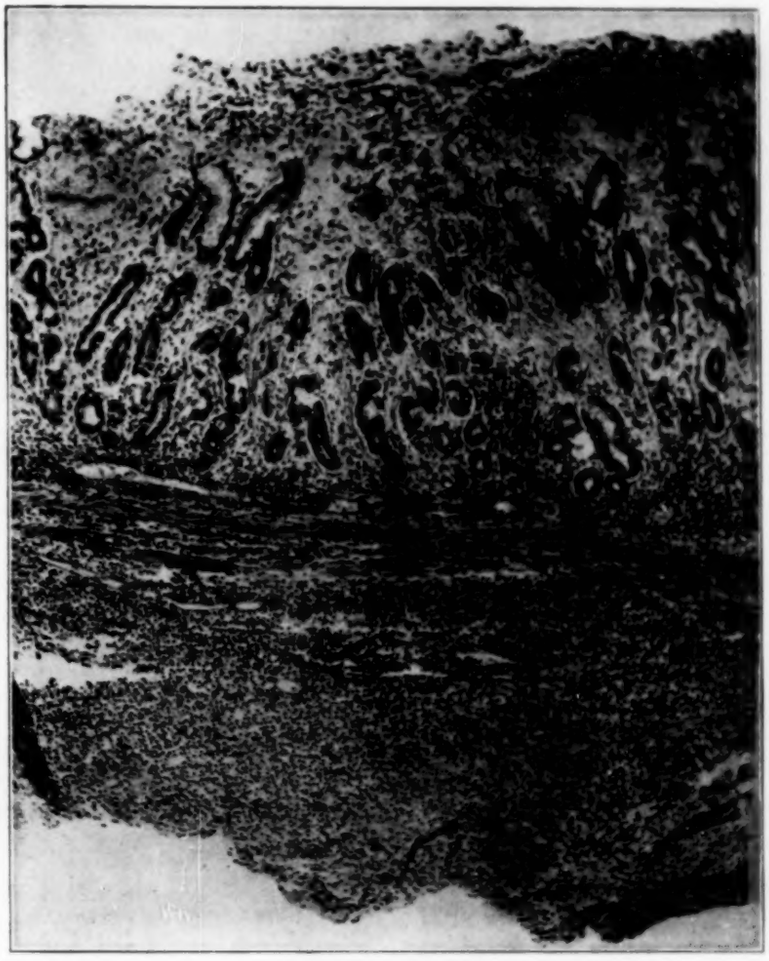

Fig. 4.—Above is the mucosa, showing slight infiltration and hemorrhage. Below this is the muscularis mucosae, while the abscess itself is within the submucous layer. Note intense infiltration with leukocytes and round cells. (Photomicrograph by Schapiro).

DIAGNOSIS

From what has been said, it may be seen that it is perhaps true that, as Leith says, "we cannot hope to do more than guess at the diagnosis" of phlegmonous gastritis. In only a few instances (Chvostek, Dörbeck, McCaskey), not all of established authenticity, is diagnosis said to have been made during life.

PROGNOSIS

The prognosis is grave. Recoveries from the diffuse form of the disease are exceedingly few, and even in these the diagnosis must remain open to doubt. In the circumscribed cases, it is conceivable that recovery may follow spontaneous evacuation of the abscess into the stomach. The occurrence of one or more perforations into the stomach is not, however, a guarantee of recovery, as shown in Koenig's case,[12] in which there were numerous fine openings through the mucosa, although the abscess still remained. I am convinced, however, that Koenig is correct in his belief that in a certain proportion of cases, phlegmonous gastritis, after an initial acute attack, may subside into a subacute or chronic stage, characterized by the formation of a definite, localized abscess, often simulating a neoplasm in its gross appearance. This I believe to have been the history in my own patient, which is indicated not only by the long clinical course but also by the evidences of beginning cicatrization detected on microscopic examination.

TREATMENT

In all except a few of the cases reported in the literature, treatment has been purely symptomatic. In one undoubted case of von Mikulicz, reported by Lengemann,[13] saline irrigation and gauze tamponade resulted in recovery. The patient in Leith's case was subjected to exploratory laparotomy, with irrigation of the peri-

11. Oser: Magenentzündung, Real Encyclopedia **7**: 412, 1887 (quoted by Leith).

12. Koenig, F.: Deutsche med. Wchnschr. **14**: 631 (April 6) 1911.
13. Lengemann: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **9**: 762, 1902.

toneum, but death ensued. Gastro-enterostomy was also performed in two cases by Robson and Moynihan,[8] once successfully and once unsuccessfully. In Bovée's case,[9] in which the disease was of the diffuse variety and involved the pyloric end of the stomach, recovery followed incision of the diseased stomach wall and drainage by a rubber tube, which was tightly stitched into it.

I myself, however, have been most interested in the case reported in 1911 by Koenig,[12] because of its close similarity to my own. In Koenig's case, as in mine, the pyloric end of the stomach, when it was exposed at operation, appeared to be the seat of a soft tumor, like a medullary carcinoma, while there was an extensive inflammatory reaction in the peritoneum, with adhesions and lymphadenitis. Resection of the pyloric end of the stomach was performed by the Kocher technic, the patient making an uneventful recovery. When the resected portion of the stomach was opened, a raised abscess was disclosed, with numerous sievelike openings. As far as I can gather from the rather brief description and from the illustrations accompanying the article, there was not the very distinct tumor-like appearance which characterized the abscess in my patient.

It would seem that, in the present stage of advancement of stomach surgery, the outlook in the cases of phlegmonous gastritis which will be observed from time to time will be less devoid of hope than it has hitherto been. This applies especially to the circumscribed form, which should be just as amenable to cure by resection as any other benign pyloric lesion. In my own case, pylorectomy was performed by the Balfour technic,[14] a modification of the Polya method.[15]

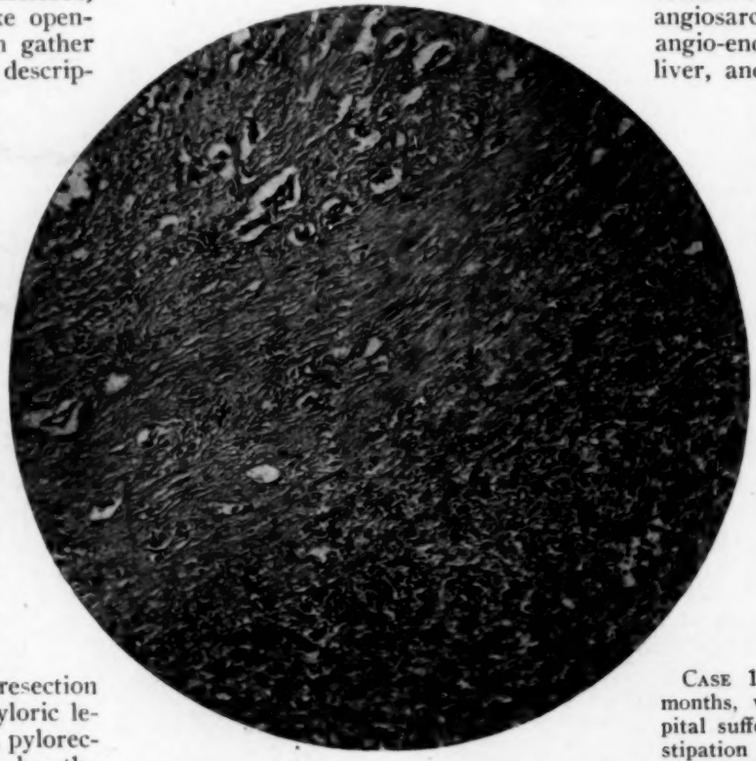

Fig. 1.—Area of compressed tissue, containing lacunae, near edge of nodule; × 106.

It may not be amiss to express the satisfaction I have derived from the Balfour operation in the small series of cases in which I have had the opportunity of using it. I have been impressed with its advantages over both the Polya operation and the Billroth No. 2, which I had used formerly. It is easier and quicker, and, as has been amply demonstrated at the Mayo Clinic, it is safer for the patient.

26 East Preston Street.

14. Balfour, D. C.: Restoration of Gastro-Intestinal Continuity by Means of Anticolic Gastrojejunostomy Following Partial Gastrectomy, Surg., Gynec. & Obst. **25**: 473 (Nov.) 1917.

15. In addition to the references already given, the following will be found of interest:
Bossart, L.: Cor.-Bl. f. schweiz. Aerzte **42**: 177 (Feb. 20) 1912.
Robertson, H. E.: Phlegmonous Gastritis, J. A. M. A. **49**: 2143 (Dec. 28) 1907.
Schnarrwyler, K.: Arch. f. Verdauungskr. **12**: 116, 1906.
Fink, E. B.: Boston M. & S. J. **175**: 795 (Nov. 30) 1916.
Sundberg, H.: Nord. m. Ark. **51**: 303 (May 15) 1919; abstr. J. A. M. A. **73**: 802 (Sept. 6) 1919.

HEMANGIO-ENDOTHELIOSARCOMA OF THE LIVER

A DISEASE OF EARLY LIFE *

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In a recent communication not as yet published, I reported a case of hemangio-endothelioma of the liver in an infant, and cited four other cases previously reported. A study also of the histories of a number of so-called primary hemangiosarcomas of the liver in infants led me to the conclusion that some of these, at least, were really hemangio-endotheliomas and should be so classified. Because of gross and microscopic anatomic details found in the cases reported as sarcomas by Lendrop[1] and de Haan,[2] and despite meager histologic facts in the cases of Parker[3] and Bondy,[4] it is certain that all of these so-called angiosarcomas were really hemangio-endotheliomas of the liver, and should be added to the number of these rare growths reported up to the present time. Because of the confusion in terminology, and since, according to Adami,[5] "the actively growing tumors of transitional lepidic character have also from this standpoint to be considered as sarcomatous," I suggested that all malignant hemangiomas of this type be called "hemangio - endotheliosarcomas."

I shall briefly summarize the case which I recently reported.

Case 1.—A boy, aged about 3 months, was brought to the hospital suffering from obstinate constipation and enlarged abdomen which the family physician thought might be due to an intestinal obstruction. There was nothing notable in the past history of the infant, except difficulty in feeding and constipation extending over some weeks and accompanied by loss of weight. The abdomen was enlarged and distended, and a large mass occupied the liver region, 7 cm. below the costal margin in the mammary line and extending backward to the left till it reached the pelvic brim. The mass was soft, and no distinct or sharp outline could be felt. The child had not been jaundiced, and the mother had not noticed the enlarged liver till about a month before. An exploratory laparotomy was performed by Dr. Crook to relieve, if possible, any cause for obstruction. Nothing of note was found except a large, purplish, nodular liver, one of the cut nodules

* Read before the Section on Diseases of Children at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Lendrop: Hospitalstidende, 1893, p. 217.
2. De Haan: Beitr. z. path. Anat. u. z. allg. Path. **24**: 215, 1903.
3. Parker: Tr. Path. Soc. London **21**: 290.
4. Bondy, Julius: Angiosarcoma of the Liver in an Infant, J. A. M. A. **56**: 873 (March 25) 1911.
5. Adami: Principles of Pathology **1**: 762, 1910.

of which was bleeding freely. The infant died twenty-four hours later. The necropsy revealed a very large purplish liver, studded with nodules varying in size from that of a millet seed to that of a walnut. Some were confluent and all showed lighter under the liver capsule. Cut sections revealed these nodules consisting of a whitish ring with a dark red center throughout the liver. The liver, after hardening, weighed 750 gm. Histologic sections showed the liver cells degenerated and vacuolated, especially near the nodules. The interlobular septums were increased in size. The smaller blood vessels were choked with endothelial cells in multiple layers. The nodules were filled with these cells with large vesicular nuclei; also some nodules showed red blood cells and leukocytes. The larger nodules had areas of dense fibrous material around them made up of compressed liver tissue and in places containing lacunae. Mitotic figures could be seen in many of the endothelial cells.

Section of the other viscera showed no metastatic growths. A diagnosis of hemangio-endothelioma was made.

It is important to differentiate these growths which are recognized in the liver of the infant shortly after birth, from the malignant changes which occur in hemangiomas, especially of the liver, among adults. The condition we are now considering is distinctly a disease of early life since none of the patients reported have lived to be over 6 months old. The disease appears early and undoubtedly exists at birth. That a supposedly benign angioma may develop into the endothelial sarcoma type is proved in the case of the skin tumor cited by Dutton[6] and in Fischer's[7] study of three cases of hemangioma of the liver of an endothelial type found in adults. It is true that these adult growths

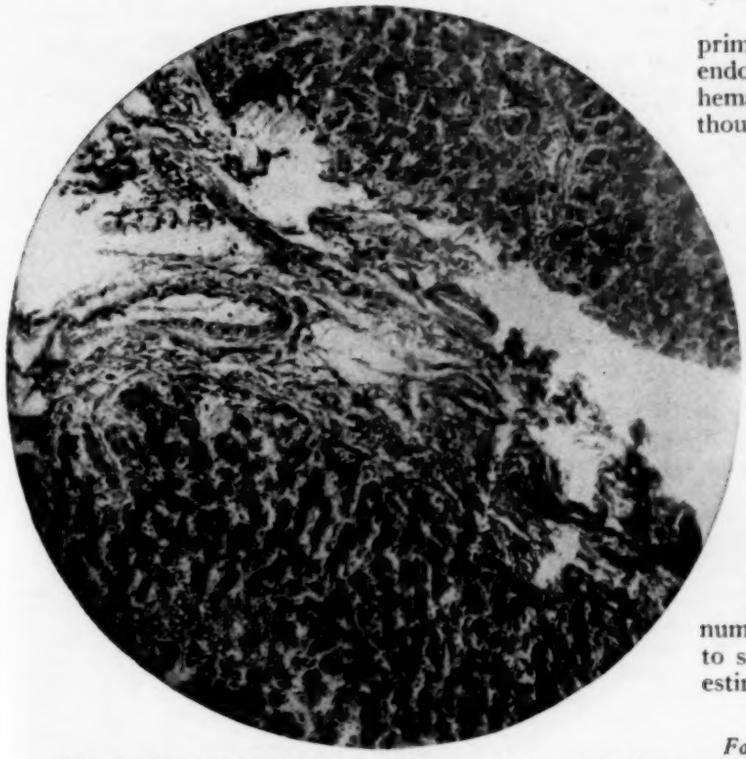

Fig. 2.—Degenerated liver tissue with septum, showing larger blood vessels without multiple layers of endothelium; × 106.

are similar histologically to the infantile type now under consideration; but while the endothelium in these adult cases seems to have reverted to an embryonic type, it is probable that in the rapidly fatal infantile type the endothelium has never wholly lost its

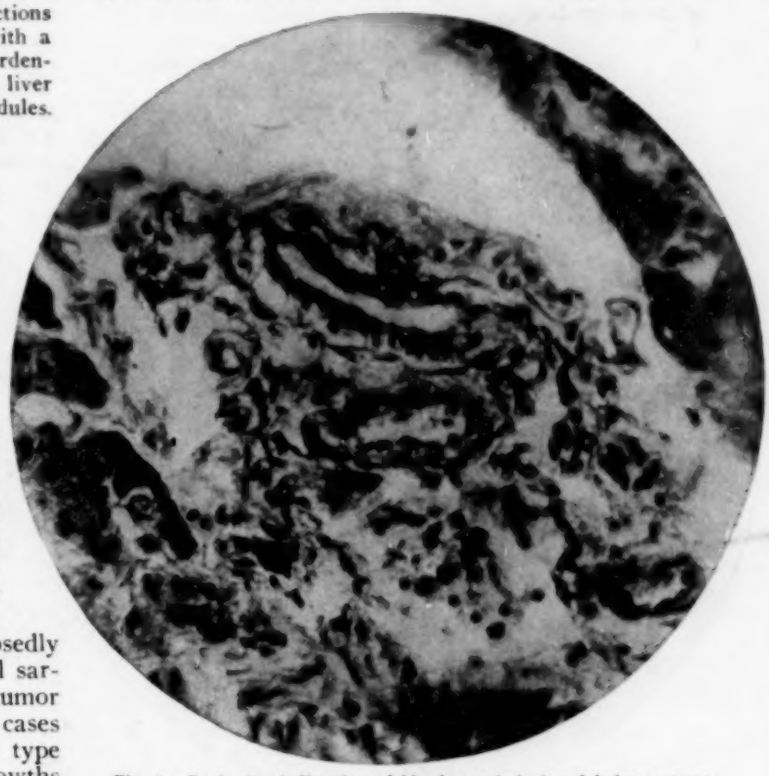

Fig. 3.—Beginning infiltration of blood vessels in interlobular septum; × 450.

primitive characteristics. This embryonic type of liver endothelium, retaining even an embryonic function of hematopoiesis, has been described by Borst and others, though not especially in this particular connection.

A striking peculiarity of these new growths is that in no case has metastasis been demonstrated. In 1899, Hewlett[8] reported a case which, though called a sarcoma of the liver, unquestionably belonged in the hemangio-endotheliosarcoma group. The history, gross anatomy and histology corresponded to the case histories already cited. Metastases in the lungs were described by Hewlett in the form of nodules of the same general structure as the liver nodules. Unfortunately, he did not offer any histologic detail of these lung nodules except as to fibrosis and thickening of the alveolar walls. It is quite possible that metastases might occur in hemangio-endotheliosarcoma of the liver, but proof is so far lacking, in marked contrast to the frequency of metastases in simple sarcomas. If the case just cited be added to those already reported, the total number of protocols will be ten—a number sufficient to summarize the main characteristics of these interesting growths.

SUMMARY OF TEN CASES[9]

Family History.—No history of malignant disease of the liver in parents was given in any case.

6. Dutton, J. E.: Liverpool M.-Chir. J. **18**: 369-376, 1898.
7. Fischer, B.: Frankfurt Ztschr. f. Path. **12**: 399-421, 1913.
8. Hewlett: Intercolon, M. J. Australia **4**: 615-619, 1899.
9. These cases include the five reported in Footnotes 1, 2, 3, 4 and 8, together with:
Chervinsky: Arch. de physiol. norm. et path. **6**: 553, 1885.
Bruchanow: Ztschr. f. Heilk. **20**: 431, 1889.
Veeder and Austin: Am. J. M. Sc. **104**: 102-107, 1912-1913.
Stern: Arch. Diagnosis **8**: 72-73, 1915.
Foote, John: In Osler Anniversary Volume.

Character of Labor.—No peculiarities of note occurred during pregnancy or parturition.

Previous History.—Ten were breast fed at the beginning. All were well nourished, but developed digestive troubles and constipation later.

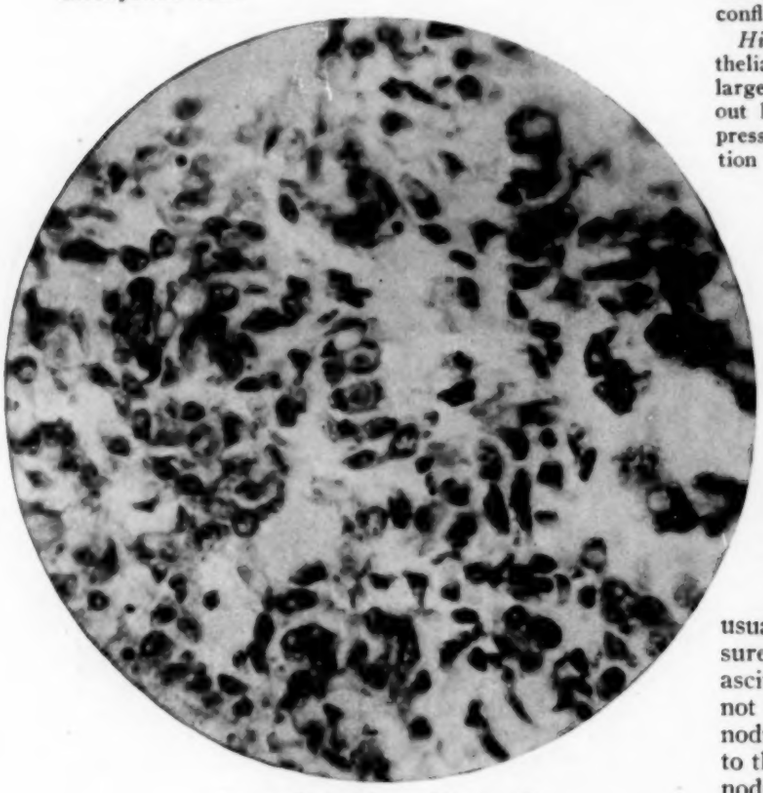

Fig. 4.—Center of a nodule; × 450.

Date when Liver Enlargement was Noticed.—In some cases, abdominal enlargement was not noted till the patient was brought to the hospital. In two cases the growth was noted at 3 weeks, in two at 6 weeks, in two at 10 weeks, in one at 12 weeks, in one at 15 weeks and in two at 16 weeks. In no case was the nodular outline observed by the mother.

Special Symptoms.—In addition to enlargement of the abdomen, all patients suffered from constipation, and one from vomiting. Disturbances of digestion occurred shortly before or after the third month.

Clinical Course.—Four cases were reported as anemic. In three, mention was made of undigested stools. In no case was any jaundice observed after the initial jaundice of the new-born had subsided. Five patients were submitted for treatment because of a discovered abdominal mass, one because of indigestion, one for constipation and vomiting, and three for constipation alone. One patient had angiomas of the skin. No abnormalities of pulse or respiration were noted. Ascites was not observed except in a case on which a laparotomy had been performed.

Date of Death.—One child died at 5 weeks, one at 7, one at 11, one at 12, two at 15, two at 16 and one at 24 weeks. In two cases exploratory laparotomy was performed. Progressive weakness and exhaustion was cited as the cause of death in seven cases.

Metastases.—No metastases have been demonstrated.

Description of Liver.—The smallest liver weighed 522 gm., the largest, 1,625 gm. The average in the six cases in which the specimen was weighed was 902 gm. All were described as purplish or dark red. Nodules showed lighter under the capsule in every case. In one, the nodules were described as "of all sizes"; in one, of "varying sizes up to a walnut"; in one, "pea to a cherry size"; in two, simply "covered with nodules"; in two, "millet seed to walnut sized"; in one, "millet seed to a marble," and in two, "pea to hen's egg" size. In seven cases, nodules were described as being seen throughout the liver. In only six, reports were made of the appearance of the nodules on section, and in all these the nodules were said to be dark red in the center and surrounded by whiter areas or rings. Three were described as having some confluent nodules.

Histology.—Six protocols describe multiple layers of endothelial cells in the smaller blood vessels, nodules packed with large round or oval cells with vesicular nuclei, with or without hemorrhagic areas. Seven also describe the effects of pressure in causing fibrosis around the nodules and degeneration of liver cells. In two the histologic details are incomplete or fragmentary, and a mere statement of the diagnosis is made in one case. Round cell infiltration of liver tissue is observed in every case, and in one a "fine cirrhosis" is noted.

SUMMARY

Summing up the information gained from a study of these cases, we may define hemangio-endotheliosarcoma of the liver as a congenital disease manifesting itself by an enlargement of the liver and some digestive disturbances within three months after birth, and caused by rapid and unrestrained proliferation of the endothelium of the liver capillaries causing the formation of nodules on the surface of and within the liver and a rapid and progressive increase in the size of that organ with a fatal termination usually before the sixth month as a result of pressure and obliteration of liver tissue. Jaundice and ascites are not usually observed, and metastases are not found. The liver is purplish, and is studded with nodules varying in size from that of a millet seed to that of an egg, some of which are confluent. These nodules are lighter in color than the surrounding tissue, and are also seen throughout the liver in cut sections to be dark red in the center surrounded by a lighter colored ring. Histologically the liver shows an infiltration of the more normal areas with small round cells. In places the liver cells are distorted, atrophied and vacuolated. The interlobular connective tissue is increased. The smaller blood vessels are choked with large endothelial cells, some showing mitotic figures.

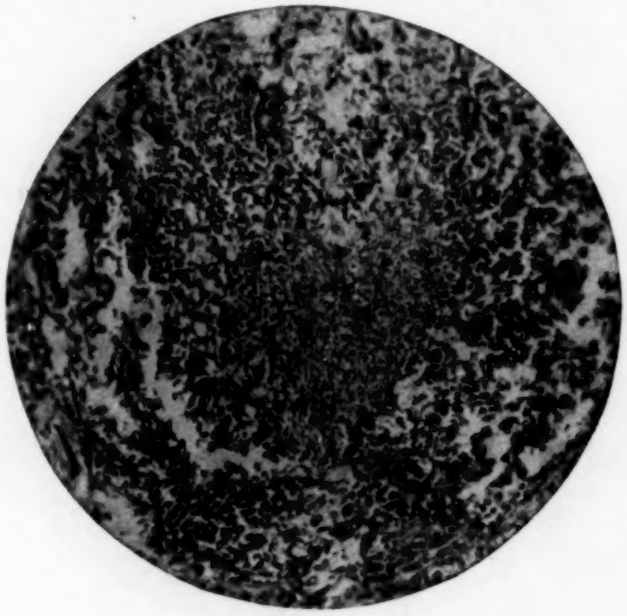

Fig. 5.—Center of a nodule; × 100.

The nodules are surrounded by a fibrous band of compressed liver tissue. In some places this fibrous band shows lacunae containing degenerated liver cells. The larger nodules are packed with large round or irregular cells with large nuclei, some areas resembling

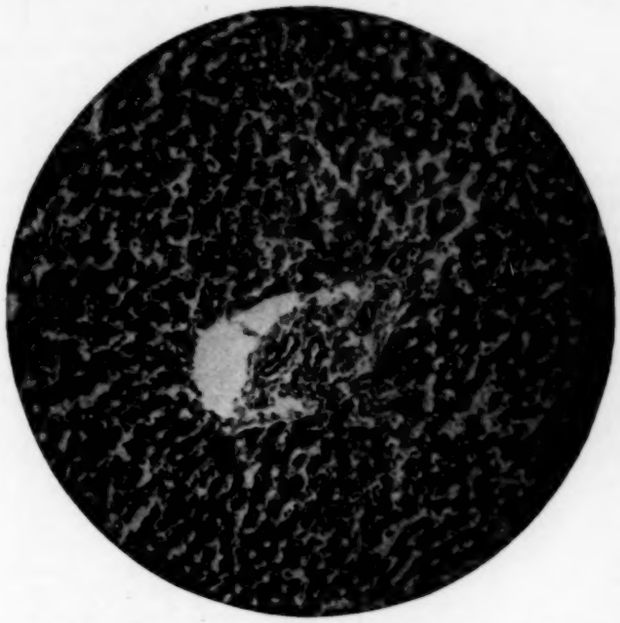

Fig. 6.—Larger vessels show swollen endothelium, smaller ones infiltration; × 100.

myxosarcoma. Giant cells and polymorphonuclear leukocytes are also seen in some areas. Hemorrhagic areas are also noticeable in some fields.

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SOME UROLOGIC ASPECTS OF DERMOID CYSTS*

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Although in gynecologic and surgical literature and textbooks the varying clinical manifestations caused by dermoids are well known and frequently noted, it is only in rare instances that they are brought to the attention of the urologist. Such growths may at times, however, give rise to marked disturbance and involvement of the urinary tract, and it is to emphasize this fact that the following case histories are reported:

REPORT OF CASES

CASE 1 (7888).—*Dermoid cyst of the vesicovaginal septum, causing ulceration of the bladder with profuse hematuria.*

History.—A married woman, aged 25, entered the Peter Bent Brigham Hospital complaining of hematuria. She had had two children without any complications of delivery. Nine years before her entrance into the hospital, there had occurred occasional attacks of urgent urination. About one year previously, these attacks had become more severe, and at this time undue frequency of urination also appeared. There was a feeling at the end of micturition as if she still should pass water, but she was unable to do so. There was never any pain in the bladder. About two months before her admission, hematuria began, and at times the blood was seen in clots. More recently, the bleeding had increased definitely in amount.

Examination.—The general physical examination disclosed nothing abnormal. Vaginal examination revealed a moderate sized cystocele and a slight lateral tear of the cervix uteri. Otherwise, the pelvic organs were normal.

Examination of the bladder by use of the cystoscope showed it to be normal except for an area 2.5 cm. in circumference situated on the left aspect of the trigon, just inside the internal urinary meatus. This area was raised above the level of the bladder, and the mucous membrane was irregular, eroded and ulcerated. In one or two areas there were hemorrhagic spots, evidently the source of the bleeding. In other areas there were extensive phosphatic deposits. The ureters were uninvolved and normal in appearance. Normal urine, free from blood, came from each. It was felt that this area in the floor of the bladder was probably neoplastic in origin because of (1) its long duration without other signs than those of bleeding, and (2) its tendency to necrosis with a deposit of lime salts. It seemed wise to advise excision of the area.

Operation.—The abdomen was opened, Dec. 24, 1917, by a vertical incision in the midline extending from the pubes to within 3 cm. of the umbilicus, the patient being in the high Trendelenburg position. Through this incision the intestine was walled off by gauze packs and the uterus drawn backward. The peritoneum was incised transversely at the level of its reflection onto the bladder, and the bladder separated from the anterior surface of the uterus by blunt dissection. There were no evident areas of neoplasm in this region. The bladder was then opened by a vertical incision made from above downward on its posterior wall, and the ulcerated area inspected. This was found to be considerably raised above the general surface as previously described. On ocular

Fig. 1 (Case 1).—Dermoid of vesicovaginal septum causing ulceration of bladder.

inspection, however, it did not look especially malignant. By extending the incision in the bladder wall downward, and by the aid of sutures placed over the edges of the cut to aid in traction, it was possible to surround the ulcerated area by an elliptic incision, cutting through all thicknesses of the

* From the Urological Clinic of the Peter Bent Brigham Hospital.
* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

bladder. The area in question was thus excised. The bladder was repaired by interrupted stitches of fine catgut in a double row. It was found impossible to place accurately the stitches nearest the urinary meatus, and therefore this was left to be approximated from the vaginal approach. After closure of the bladder as high as its vertex, the peritoneum was sutured by a running catgut stitch, and a drain was left in the bladder to divert the urine. The abdomen was then closed in the usual manner by a continuous stitch for the peritoneum, interrupted stitches for the fascia, and silk for the skin.

The patient was then placed in the lithotomy position, and preparation was made to separate the anterior vaginal wall from the neck of the bladder. On following the transverse incision below the urethra, it was at once seen that what had previously been considered a cystocele was a dermoid cyst. This was excised and found to be filled with possibly 10 c.c. of material like yellow, thick cream. The wall of the cyst was excised and found to connect superiorly immediately with the area of the bladder which had previously been dissected. The bladder floor was closed over this incision by interrupted stitches, and after being sure that the wall of the cyst was entirely removed, the anterior vaginal mucosa was sutured with interrupted chromic catgut. A vaginal pack was put in place for twenty-four hours.

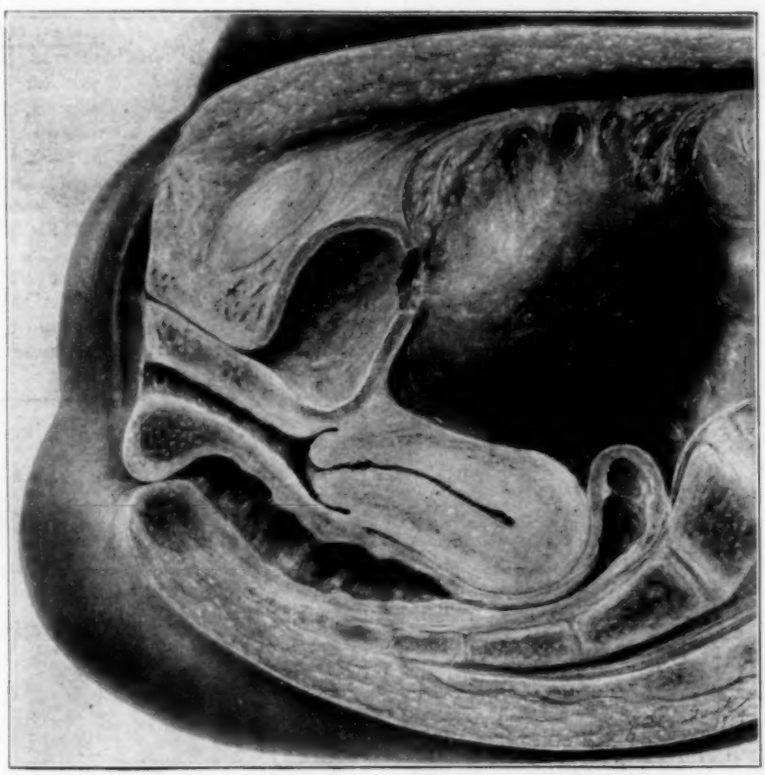

Fig. 2 (Case 2).—Large adherent dermoid of ovary filling the pelvis and communicating with the bladder.

It is evident that we have here dealt with a chronic bleeding ulcer of the bladder, which was a complication of a dermoid cyst of the anterior vaginal wall, and was caused by it. Although the diagnosis was not made before operation, it seems probable that this condition in the bladder would have responded readily to no treatment other than excision.

Postoperative History.—The patient made an uninterrupted recovery and was discharged on the nineteenth day after the operation. At this time, cystoscopy revealed a perfect healing of the bladder floor.

A recent note from the patient states that she is entirely cured.

CASE 2 (10055).—*Dermoid cyst of the ovary filling the true pelvis; communication with vault of bladder; severe cystitis.*

History.—An unmarried woman, aged 43, entered the Peter Bent Brigham Hospital, complaining of dysuria. Except for the fact that the patient had had an attack of "peritonitis" when she was 23 years old, the past history was essentially negative. Until four months before entrance, she had been entirely well. She then noticed suddenly that urination was painful, and the condition had persisted ever since. There was moderate frequency of urination, and the urine was turbid. There was never any hematuria, and there were no attacks of fever. During the month before admission, the bowels had become exceedingly costive. The patient also noticed that she was losing weight. During six weeks preceding her admission to the hospital, the dysuria and frequency became more marked, and she was finally required to urinate at least five or six times at night. There had been a dull, intermittent, suprapubic pain for two weeks, and this was not relieved by emptying the bladder. Pain in the lower abdomen, on walking, had also been a late development.

Examination.—The patient was poorly developed and nourished. The only abnormality found was a mass above the pubes, rounded in outline with its base below, extending half way up to the umbilicus. Its greatest width was 11 cm. Palpation revealed a firm, moderately tender tumor which did not disappear on emptying the bladder. There was no tenderness in either costovertebral angle. When this mass was palpated by rectum, it was found to fill the whole pelvis and to cause marked downward dislocation of the uterus. On account of extreme tenderness it was impossible to determine the relations of this mass definitely.

The urine was cloudy, with a specific gravity of 1.017, and in the sediment were many leukocytes and small round cells. No blood or casts were found.

On cystoscopy, the bladder was found to be of slightly diminished capacity, and contained a considerable amount of thick, ropy pus. There was considerable infection in the region of the trigon. In the posterior upper portion of the bladder wall, just below its vertex, was seen an area, about 1 by 2 cm. in size, showing sloughy and irregularly hyperemic elevations and depressions, and surrounded by bullous edema. It was considered to be uncertain whether this area in the vault represented a definite penetration of the bladder or whether it was merely due to circulatory changes in the wall, due to adhesions formed between it and the pelvic mass.

Operation.—March 6, 1919, with the patient in the Trendelenburg position, a linear incision was made from above the symphysis to the umbilicus, in the median line. The omentum was found firmly adherent in a large mass low just behind the pubes in the region of the vault of the bladder. Below this adherent omentum was a tumor mass with a roughly nodular surface, semifluctuant. On further exploration, this mass was found to be intimately adherent to all the pelvic structures. It was necessary to resect the omentum in order to lift it upward. This was done, cutting after tying off with sutures passed on needles. It was then found that the mass represented the right ovary, and that it was a dermoid cyst containing pultaceous material and hair. After enucleation from the posterior surface of the right broad ligament, firm adhesions to the sigmoid were encountered. These were cut after ligation and the mass lifted upward. On the extreme left it was not adherent, but above the fundus of the uterus and in front it was densely adherent to the bladder, and in separating these adhesions the bladder was inevitably entered, with the escape of some of its contents into the pelvis. The bladder was sutured, after removal of

the cyst, as well as might be, although it was quite impossible on account of the absence of peritoneum to make a satisfactory separation of the bladder from the peritoneal cavity. Following removal of the cyst, the pelvis was drained with one large cigaret tube, and the bladder drained by a self-retaining catheter in the urethra. The operation was exceedingly difficult on account of the density of the adhesions, and its duration was two hours. The patient's condition, however, at the end of the operation, was quite satisfactory.

Subsequent Condition.—Six days after the operation the following note was made:

"Since operation the patient has been showing increasing signs of intestinal obstruction. She has vomited at irregular intervals, which have grown more frequent. She has been quite unable to retain any nourishment and there have been frequent intervals when the pulse has been po[illegible] She has had no fever at any time. The bladder condition has been fairly satisfactory. The catheter has drained well enough for the most part, although two days ago there were signs of leakage around the abdominal drain, and this was therefore replaced by a small sized tube. The output of urine has been only moderate in amount, but seems to have been sufficient. Today the abdomen is tensely distended, but there is no dulness to be found in either flank, although the patient is vomiting green bile. She is very weak and has typical abdominal facies. It is evident that in spite of repeated enemas and stomach washouts she is not making progress. Secondary operation is therefore necessary to relieve probable obstruction."

Second Operation.—March 13, 1919, under light anesthesia, the old incision was opened and the abdomen explored. No collapsed bowel could be found, all the bowel, large as well as small, being markedly distended. There was no purulent peritonitis present, although over the coils of the pelvis there were occasional bits of fibrin with adhesion. One coil of ileum was quite markedly kinked deep in the pelvis on the right side, and, after release, its gas was heard to move freely through the intestine. All coils of bowel which had become adherent in the site of the previous operation were freed, and a Mixter tube was quickly sewed into the cecum. This was led out from the abdomen through a small incision in the right lower quadrant. The pelvis was again drained with a deep cigaret wick and the wound closed in the usual manner.

From the second operation the patient did not rally, and death occurred about thirty-six hours later.

Postmortem Examination.—Paralytic ileus following fibrinous peritonitis was found at necropsy, together with necrosis of the posterior wall of the bladder, with cystitis, and cellulitis of the perivesical tissues.

This condition was undoubtedly the result of partial rupture of the adherent dermoid during its removal, with some soiling of the pelvis. The content of dermoid cysts is well known to have a toxic proteolytic action on any fresh tissue with which it comes in contact. In the peritoneum this action is marked and results in a nonbacterial adhesive peritonitis. Leakage of urine through the sutured area in the bladder probably played a very minor part in causation of the peritonitis, if leakage occurred at all, for at the second operation the suture seemed to be holding firmly.

Examination of Dermoid Cyst.—Gross description: The specimen consisted of a cyst about 7 cm. in diameter. The surface was rather bright red. There were numerous injected blood vessels. It felt boggy. Its contents consisted of a large mass of brownish hair mixed with a grayish yellow material about the consistency and general appearance of thin clay. The wall varied in thickness from 2 to 4 mm. It was quite fibrous, and anteriorly was covered with a very vascular granulation tissue on which was a layer of yellow necrotic tissue about 1 to 2 mm. in thickness. This could be stripped off, exposing a very vascular, roughened surface. From one place over an area about 2 cm. wide the growth of hair seemed to spring, the hair being intimately adherent to the wall by a red, fibrous pedicle. There were two or three areas where the wall was thickened and quite firm, and on section it was pale white and with the consistency of cartilage. A frozen section of this portion of the wall showed it to consist chiefly of a hyalin framework in which there were numerous leukocytes and necrotic cells. A frozen section in another portion of the wall was seen to consist chiefly of granulation tissue. Smears of the yellow exudate showed necrotic leukocytes, necrotic cells and gram-negative bacilli.

Microscopic Report: There were three sections from various parts of the cyst wall. Lining the cyst was a thick layer of granulation tissue containing numerous giant cells and occasional small areas of necrosis. Beneath this layer the wall was composed of dense fibrous tissue which in great part was of a pale, hyalin appearance. There were numerous small abscesses in the wall with intense polymorphonuclear reaction and areas of necrosis. Many of the smaller blood vessels showed the changes of obliterative endarteritis and perivascular mononuclear infiltration.

Diagnosis: The diagnosis was: a dermoid cyst, with acute and chronic inflammation of the wall.

A third case illustrating in striking manner the action of dermoid cysts when causing renal colic is found in the recent report of Fagge.[1]

CASE 3.—*History.*—Nurse H., aged 27, complained one evening of dull "stomach-ache," which she had endeavored to treat with castor oil, but without success. The history she gave was that she had had scarlet fever in childhood, but no other illness of importance. The recent pain had been at first a diffuse abdominal pain. She had taken a dose of castor oil, and then, as the first dose had made her sick, she had taken another.

The physician who first saw her regarded the case as one of so-called gastritis, and gave her an anodyne; this alleviated the pain, and she slept fairly well. By the following evening, however, the pain had returned; it originated in the left loin, radiated to the left subcostal region, around the waist, and (a little later) toward the groin. It was of a colic-like nature, and accompanied by nausea, though not by actual vomiting. No tumor could be felt in the renal region, or elsewhere, and the urine was reported by the sister of the nurse's sickroom to be normal on chemical examination.

Renal colic due to calculus was suspected, and a roentgenogram was taken, which cleared up the diagnosis. Two teeth were to be seen very plainly at the level of the pelvic inlet—the root-canals could distinctly be seen in the original plate. Since the patient had not swallowed any teeth, it was evident that she was suffering from an ovarian dermoid cyst. Moreover, roentgenograms of the kidneys gave no evidence of calculi, so that the cyst was probably the cause of the symptoms, and not merely incidental.

The patient was transferred to a surgical ward. While awaiting the visit of the surgeon in charge, a sudden change occurred in her condition. She began to vomit violently and became distended and tympanic; in short, she showed not only signs of pressure on the ureter, but also those of intestinal obstruction. It should be remarked that prior to this attack of obstruction, she had suddenly passed an unusually large quantity of urine, suggesting that the renal symptoms which had predominated at the early stage of her illness were due to hydronephrosis—closed at first and finally opened.

Operation and Result.—In view of the sudden change in the patient's condition, a laparotomy was performed with the least possible delay; it was found that there were two ovarian cysts, firmly impacted in the pelvic brim. Both were multilocular, and contained hair and pultaceous material of the usual kind. The teeth were found in the right cyst, while the left cyst had evidently pressed on the pelvic colon and caused the obstructive symptoms. The left ureter showed no external signs of obstruction, but as some hours had elapsed since the discharge of urine, it is not surprising that no such sign was seen, and the absence of any such indication in no way controverts the diagnosis of hydronephrosis. The pelvic colon showed the usual signs of recent moderate

1. Fagge, C. H.: Bilateral Ovarian Dermoid Cysts Simulating Renal Colic, Brit. J. Surg. 6:468 (Jan.) 1919.

obstruction. Both cysts were excised. No trace of ovarian substance or of supernumerary ovaries could be seen macroscopically. Recovery was uneventful.

The further history of the case is not at present ascertainable, but it seems probable that complete amenorrhea will soon set in, with all the ordinary train of physical and psychic changes, for the girl's appearance, prior to the operation, was such as to suggest that her supply of ovarian internal secretion had long been deficient.

The main interest of the case centers in the unusually complete simulation of renal trouble at the start, and then the sudden transformation into a case of intestinal obstruction; and also in the rapid and certain aid to diagnosis afforded by the roentgen rays.

The teeth in the right dermoid were about as long and as thick as adult canines; the crowns were slightly flattened, and showed several little cingula near the top. Each tooth had a single root, though the apex of one of them was a little bent to one side. No trace of dental or bony matter was found in either cyst beyond these two teeth, though there were a few partially calcified areas in the débris.

COMMENT

Such cases as these are illustrations of the fact that a dermoid cyst, frequently quite benign, may later take on characters of growth causing marked adhesion and even penetration into an adjacent viscus. When the bladder is thus involved or the ureters occluded by pressure, a knowledge of such characteristics by the urologist is all important.

ABSTRACT OF DISCUSSION

Dr. Hugh H. Young, Baltimore: A man came to the dispensary of the Johns Hopkins Hospital some time ago bringing with him a small calculus that he had passed in his urine. It was attached to a hair. We cystoscoped him and found another calculus on the anterior wall of the bladder. It, too, was attached to a hair. As the patient was shaking, it would move back and forth like a pendulum, and it was very easy to trace it to a little opening on the anterior wall of the bladder, which very evidently had some pocket. He was not willing to go into the hospital then, therefore we caught this calculus with a cystoscopic rongeur and removed it, thinking that it might possibly cure him. In a few months he returned with another hair calculus. I did a suprapubic cystotomy and removed a pocket in the anterior wall which contained a very small amount of hair. Apparently he has been cured by this simple procedure.

Dr. Arthur L. Chute, Boston: About two years ago I saw a case of dermoid of the ovary that had ruptured into the bladder. The patient, who had been having urinary distress with an infected urine, showed, on cystoscopic examination, a bladder that contained great masses of hair. A mass as big as my fist, filled with hair, was removed abdominally and the opening into the bladder was closed. The patient made a good recovery.

Influenza in the Philippines.—In the *Revista Filipina de Medicina y Farmacia*, Dr. Eugenio Hernando, the chief of the provincial division of the sanitary service of the Philippines, reviews the epidemic of influenza that occurred in the Philippines from June to December, 1918. The total number of deaths caused by the epidemic was 70,513. It is estimated that the disease attacked 40 per cent. of the total population of about 7,000,000, the mortality being about 2.5 per cent. of those attacked. The epidemic really began in June although it did not assume severity until October. The groups of ages that suffered most were those between 10 and 29 years. The disease did not seem to be imported, since cases were occurring before any ships arrived from infected countries, although after the importation of cases it assumed a more severe form. The June epidemic seemed to confer a certain degree of immunity during the second outbreak of the disease in October.

THE SIMULATION OF MENINGITIS BY INFLUENZA

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In reports of the pandemic of influenza and its complications, reference has been made to toxemia and to the symptoms of shock and meningitis. Thus, Keeton and Cushman[1] mention the delirium observed early as well as late in the disease, and liken the shock to that following operations. They noted the engorged conjunctival blood vessels, so constantly seen in the acute exanthems, in a number of the patients suffering from influenza and pointed out the difficulty not infrequently encountered in differentiating influenza from meningitis.

Evidence of this systemic infection is also present in statements regarding toxemia and delirium in the reports made by Friedlander and his co-workers,[2] and by Synnott and Clark.[3] Strouse and Bloch[4] mention one case, in the 500 studied clinically by them, at first suggestive of meningitis but with the spinal fluid unchanged except for increased tension. Nervous manifestations were observed in the patients suffering from influenzal pneumonia and also from uncomplicated influenza by Lyon and others[5] at Camp Upton. More recently Neal[6] has made this feature of influenza the subject of special consideration. She reports twenty instances in which she observed meningeal symptoms, headache, stiffness of the neck, positive Kernig sign, and extreme apathy, in patients convalescing from attacks which clinically appeared to be influenza. The spinal fluids in her patient's were negative in chemical and cytologic constituents with rare exceptions. Bloomfield and Harrop[7] and Alexander[8] have referred to the evidence of systemic infection in cases of influenza and have likened the onset to that of the acute infections and acute exanthems with constitutional reactions, such as headache, chills, fever, general aching, malaise, prostration, anorexia, nausea and vomiting. Generalized infection in influenza is also referred to by Le Count,[9] who states that it is difficult to ascribe death to the small amount of lung tissue actually pneumonic in many cases of influenzal pneumonia.

With these matters in mind we have reviewed again the records studied by Keeton and Cushman with the addition of those which have accumulated since their report, 3,400 cases in all, and find that nearly 1 per cent. of these patients had symptoms suggestive of meningitis or cerebral involvement. They varied

1. Keeton, R. W., and Cushman, A. B.: The Influenza Epidemic in Chicago, A Type of Toxemic Shock, J. A. M. A. **72**: 1962 (Dec. 14) 1918.
2. Friedlander, Alfred; McCord, C. P.; Sladen, F. J., and Wheeler, G. W.: The Epidemic of Influenza at Camp Sherman, Ohio, J. A. M. A. **71**: 1652 (Nov. 16) 1918.
3. Synnott, M. J., and Clark, Elbert: The Influenza Epidemic at Camp Dix, J. A. M. A. **71**: 1816 (Nov. 30) 1918.
4. Strouse, Solomon, and Bloch, Leon: Notes on the Present Epidemic of Respiratory Disease, J. A. M. A. **71**: 1568 (Nov. 9) 1918.
5. Lyon, I. P.; Tenney, C. F., and Szerlip, Leopold: Some Clinical Observations of the Influenza Epidemic at Camp Upton, J. A. M. A. **72**: 1726 (June 14) 1919.
6. Neal, Josephine B.: Meningeal Conditions Noted During the Epidemic of Influenza, J. A. M. A. **72**: 714 (March 8) 1919.
7. Bloomfield, A., and Harrop, G. A.: Epidemic of Influenza, Bull. Johns Hopkins Hosp. **30**: 1 (Jan.) 1919.
8. Alexander: Berl. klin. Wchnschr., 1918, No. 38; abstr. Deutsch. med. Wchnschr. **44**: 1171, 1918.
9. Le Count, E. R.: The Pathologic Anatomy of Influenzal Bronchopneumonia, J. A. M. A. **72**: 650 (March 1) 1919.

from slight neck rigidity and unilateral or bilateral Kernig reactions to deep delirium and marked rigidity of the neck, and in one case to opisthotonos. These cases, numbering twenty-nine, are conveniently considered in two groups: first, those in which a diagnosis other than influenza was incorrectly made as shown by postmortem examination; and second, those in which influenza or influenzal pneumonia was clinically diagnosed with meningeal complications which prompted the performance of spinal puncture. In each of the latter group the diagnosis was influenza or influenzal pneumonia complicated by meningism.

TABLE 1 (GROUP 1).—EIGHT FATAL CASES FOLLOWING INCORRECT DIAGNOSIS

Case	Clinical Diagnosis	Total Days Ill	Total Hours in Hospital
1	Epidemic meningitis	24	48
2	Uremia	Unknown	17
3	Uremia	14	1
4	Uremia	Unknown	48
5	Tuberculous meningitis	10	23
6	Apoplexy	Unknown	2
7	Apoplexy	1	16
8	Polyarthritis	14	108

The eight cases of the first group were shown by necropsy to be influenzal pneumonia with diagnosis incorrectly recorded as follows: uremic coma, three; apoplexy, two; epidemic meningitis, tuberculous meningitis, and toxemia and septicemia secondary to polyarthritis, each one. In all of these patients active delirium or deep unconsciousness was present associated with rigidity of the neck, and positive Kernig and Brudzinski signs. The spinal fluid was constantly under increased tension, but the demonstration of globulin, albumin and increased cell counts was variable; the spinal fluids were sterile.

Among these eight cases, both early and late, involvement of the lung was found at necropsy. An instance of the early fulminating type is illustrated by the following case:

CASE 1.—An Irishman, aged 32 years, was brought to the hospital in a stupor and active delirium with an admission diagnosis of meningitis. Relatives of the patient stated that he had complained of soreness in his joints, headache and stiffness of the neck for two days. Bubbling râles were heard in the lungs, but nothing else of importance was demonstrated. The neck was markedly rigid, Kernig's sign was distinctly positive, and the spinal fluid was under increased tension but was otherwise unchanged. The clinical diagnosis was recorded as: acute polyarthritis with severe toxemia and delirium all out of proportion to the other manifestations of the disease.

Five days later the patient died, and necropsy was performed the same day. No changes were found in any of the joints of the extremities. The pia-arachnoidal vessels were engorged; the spinal fluid was abundant but bacteriologically negative. The mucous membrane lining the larynx, trachea, bronchi and finer bronchioles of the left side was decidedly hyperemic. In the lumen of the trachea and left bronchial tree was a moderate amount of frothy mucopurulent material. The right lung was but little changed. The following description was made of the left: There is a large confluent subpleural, interlobar hemorrhage, 5 by 6 cm. in opposite dimensions, surrounded by many millimeter-sized petechiae on the posterior surface of the lung. There are similar hemorrhages; one, 1 by 1.5 cm. on the posterior surface of the upper lobe; two, 0.5 by 1 cm., and 2 by 2.5 cm., respectively, on the posterior surface of the lower lobe. The pleura is raised up over these. In the lower lobe there are nine irregular, dark brown regions firmer than the surrounding tissue adjacent to bronchi and in the periphery of the lung. They are from 0.6 by 2.5 cm. to 0.6 by 5 cm. in size. There are four similar places having a maximum diameter of 1 cm. in the upper lobe.

Changes like these have been noted by others in acute fulminating influenza and called "hemorrhagic pneumonitis." They are mentioned by the British Medical Research Committee[9] and by MacCallum.[10]

Evidence of systemic infection, with active delirium and meningeal symptoms occurring in a late stage of influenzal pneumonia is illustrated by the subjoined case:

CASE 2.—A laborer, aged 41, was brought to the hospital in delirium with an admission diagnosis of epidemic meningitis and alcoholism. No areas of consolidation were found in the lungs. There was marked rigidity of the neck, and the Kernig and Brudzinski signs were positive. Spinal fluid was under moderately increased tension, the globulin tests were positive and the lymphocyte count was from 10 to 12. All cultures of the fluid remained sterile. The patient died at the end of forty-eight hours' stay in the hospital, and postmortem examination was made a few hours after death. The brain was found to be very edematous and the spinal fluid increased in amount and clear. Bacteriologic examination of the fluid was again negative. The trachea and bronchi contained thick, green mucopurulent material which revealed an intense hyperemia of the mucosa of the air passages. There was no consolidation in the left lung. The pleura of the right lung on the posterior surfaces of the adjacent parts of the middle and upper lobes was raised, dark and firm. The lung underlying these areas contained two dark red, consolidated, liverlike regions, each 2 by 3 cm., one in the upper part of the middle lobe, the other adjacent in the lower part of the upper lobe.

In the second group are twenty-one cases (Table 2) diagnosed as influenza or influenzal pneumonia with meningism, the latter being made after negative spinal fluid examination. There are two types of cases in this group; first, thirteen patients with active delirium and unconsciousness and second, eighteen who were able to give a history and respond intelligently to questions. There were five deaths among the thirteen severe cases and but two deaths among the eight less severe. In all of the twenty-one patients, a rigidity of the neck was noted; in thirteen the Kernig sign was positive; in six the Brudzinski sign was positive and opisthotonos was present in one, a baby of 10 months, which later recovered. The tension of the spinal fluids of all these patients was increased and all

TABLE 2 (GROUP 2).—OUTCOME OF CASES IN WHICH SPINAL PUNCTURE WAS PERFORMED AFTER CORRECT DIAGNOSIS

Case	Clinical Diagnosis	Total Days Ill	Total Days in Hospital	Outcome
1	Pneumonia	20	26	Recovery
2	Pneumonia	7	5	Death
3	Influenza	7	4	Improved
4	Influenza	18	15	Recovery
5	Pneumonia	11	5	Death
6	Influenza	Unknown	23	Death
7	Influenza	27	20	Recovery
8	Pneumonia	11	6	Death
9	Pneumonia	9	5	Recovery
10	Pneumonia	Unknown	19	Recovery
11	Influenza	16	11	Recovery
12	Pneumonia	11	4	Death
13	Influenza	12	9	Recovery
14	Pneumonia	Unknown	24	Recovery
15	Pneumonia	7	11	Improved
16	Pneumonia	28	22	Death
17	Influenza	8	5	Death
18	Influenza	13	6	Recovery
19	Pneumonia	13	4	Death
20	Influenza	17	10	Recovery
21	Pneumonia	18	15	Recovery

9. Abstracts of Foreign Literature by the British Medical Research Committee, J. A. M. A. **71**: 1575 (Nov. 9) 1918.
10. MacCallum, W. G.: Pathology of Pneumonia Following Influenza, J. A. M. A. **72**: 720 (March 8) 1919.

the fluids were clear. The albumin and globulin tests were positive in one instance, but in no instance was there an increase in the lymphocyte count.

Postmortem examination was performed on the bodies of four of the patients in the second group. The changes were similar to those usually found in the later stages of pneumonia following influenza. The mucous lining of the air passages was acutely inflamed, and a thick mucopurulent material was present in the lumens; in the lungs pneumonia, lobular in arrangement, with much blood and a scarcity of fibrin was present. The brain and its membranes presented only edema and engorgment of the blood vessels.

SUMMARY

A severe toxemia and active delirium with definite meningeal manifestations such as is encountered in systemic infections and the acute exanthems occur in some patients suffering from influenza and influenzal pneumonia.

The clinical picture in some instances closely simulates that of an actual meningitis or other intracranial causes of delirium and unconsciousness, and postmortem examination fails to reveal any inflammation of the brain or its membranes.

HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT

WITH SPECIAL REFERENCE TO THEIR OCCURRENCE AFTER TONSILLECTOMY *

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Since the epidemic of interstitial bronchopneumonia, either primary or secondary to measles, in the army camps of the United States, a new interest has been aroused in the hemolytic streptococci.

First, I wish to review briefly the most recent literature regarding the morphology and cultural characteristics of hemolytic streptococci in the throat of the healthy and sick, and then to present my results from cultures of the nose and throat with special reference to the occurrence of streptococci after tonsillectomy.

CULTURAL CHARACTERISTICS AND MORPHOLOGY OF HEMOLYTIC STREPTOCOCCI FROM THE THROAT AS DESCRIBED BY DIFFERENT AUTHORS

Andrews and Horden[1] isolated fifty-five strains of hemolytic streptococci from the throat in tonsillitis and scarlet fever, and according to Gorden's tests they were identified as *Streptococcus pyogenes* and *S. anginosus*.

Savage[2] also obtained from the inflamed and normal throats these two types of streptococci. In broth the organisms from the inflamed throat appeared in long chains and those from the normal throat in short chains. In experiments on goats[3] they failed to produce mastitis; hence he classified them as of the human type.

The organisms of the Chicago epidemic of septic sore throat in 1912 were studied by Davis[4] and Rosenow.[5] These streptococci were capsulated and appeared in pairs or in short chains. On blood agar plates the colonies were large, moist, and surrounded by a narrow, hemolytic zone. On the agar slants the colonies had no mucoid appearance.

The hemolytic streptococci in the septic sore throat studied by Hamburger[6] usually appeared as diplococci surrounded by "halo," but no capsule was demonstrated.

During the epidemic of tonsillitis in Massachusetts in 1912 and 1914, Smith and Brown[7] demonstrated two types of streptococci, namely Alpha and Beta, the former being surrounded by a zone of partial hemolysis and the latter by a zone of complete hemolysis.

During the severe infections with hemolytic streptococci at Camp Zachary Taylor, Alexander[8] isolated nineteen strains from the tonsils and forty-eight from the throat. On blood agar plates the colonies appeared small, round, raised and gray, and were surrounded with a wide, clear, hemolytic zone. They usually produced a sedimental growth in 1 per cent. glucose broth.

Davis[9] isolated several strains of hemolytic streptococci from the actinomyces-like granules with a marked anaerobic property.

Keegan[10] recently described a type of hemolytic streptococci isolated from the sore throat which seems different from the ordinary *Streptococcus pyogenes* in cultural characteristics. On blood agar the colonies were large and moist, and on drying they tended to flatten out, sometimes showing radial lines or concentric rings. Hemolysis was not marked. Cultures in glucose broth gave at first uniform turbidity and then formed sediment at the side and bottom of the tube, the cocci being diplococci in short chains.

OBSERVATIONS ON THE OCCURRENCE OF HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT OF THE HEALTHY AND SICK

Cole and MacCallum[11] studying the prevalence of hemolytic streptococci in the throat found that thirty-nine out of sixty-nine patients in measles wards harbored this organism in their throats, whereas on admission only five out of forty-four gave positive cultures.

Levy and Alexander[12] found that 77.1 per cent. of measles patients admitted to the hospital were carriers of hemolytic streptococci, while the percentage of carriers among new recruits was very low—about 14.8 per cent.

Cumming, Spruit and Lynch[13] reported that 35 per cent. of measles patients and 6 per cent. of average

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* From the John McCormick Institute for Infectious Diseases, Chicago.

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1. Andrews and Horden: Lancet **2**: 775, 1906.
2. Savage: Rept. of Med. Officer, Local Govt. Board, London, 1907-1908, p. 359.
3. Savage: Rept. of Med. Officer, Local Govt. Board, London, 1908-1909, p. 294.
4. Davis, D. J.: Bacteriologic Study of Streptococci in Milk in Relation to Epidemic Sore Throat, J. A. M. A. **58**: 1852 (June 15) 1912.
5. Davis, D. J., and Rosenow, E. C.: An Epidemic of Sore Throat Due to a Peculiar Streptococcus, J. A. M. A. **58**: 773 (March 16) 1912.
6. Hamburger, L. P.: An Epidemic of Septic Sore Throat in Baltimore and Its Relation to a Milk-Supply, J. A. M. A. **58**: 1109 (April 13) 1912.
7. Smith, T., and Brown, J. H.: J. M. Res. **31**: 455, 1915.
8. Alexander, H. L.: Hemolytic Streptococci Causing Severe Infections at Camp Zachary Taylor, Kentucky, J. A. M. A. **70**: 775 (March 16) 1918.
9. Davis, D. J.: Streptococci in Granules in Tonsils, J. Infect. Dis. **23**: 562 (Dec.) 1918.
10. Keegan, J. J.: Hospital Epidemic of Streptococcic Sore Throat with Surgical Complications, J. A. M. A. **72**: 1434 (May 17) 1919.
11. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, J. A. M. A. **70**: 1146 (April 20) 1918.
12. Levy, R. L., and Alexander, H. L.: The Predisposition of Streptococcus Carriers to the Complications of Measles, J. A. M. A. **70**: 1827 (June 15) 1918.
13. Cumming, J. G.; Spruit, C. B., and Lynch, C.: The Pneumonias: Streptococcus and Pneumococcus Groups, J. A. M. A. **70**: 1066 (April 13) 1918.

individuals were found to have hemolytic streptococci in their throats.

Nichols and Bryan[14] obtained hemolytic streptococci from the crypts of tonsils in 75 per cent. of the cases examined, and from the nose in five of nine cases, that is, 55 per cent.

Keegan,[15] studying the bacteriology of influenza, found hemolytic streptococci in the throat in pure culture in 4 per cent. and in mixed culture in 19 per cent. of influenza cases, and in 20 per cent. of convalescent patients.

Blanton and Irons,[16] from the swabbing of the throat and nasopharynx of influenza patients, obtained hemolytic streptococci in 34 per cent. of the throat cultures and in 75 per cent. of the nasopharyngeal cultures.

During the epidemic of influenza at Camp Sherman, Friedlander, McCord, Sladen and Wheeler,[17] studying cultures from the throats and nasopharynx, found hemolytic streptococci in only 4 per cent. of all the influenza cases.

Opie, Freeman, Blake, Small and Rivers[18] recorded that hemolytic streptococci were present in the throat in 22.4 per cent. of normal persons, in 1.3 per cent. of pneumonia patients, and in 3 per cent. of bronchitis patients. The incidence of hemolytic streptococci in the throat of measles patients was very low—about 2.7 per cent.—on admission, but later gradually increased to as high as 24.1 per cent.

Blanton, Burhans, and Hunter[19] obtained hemolytic streptococci from the tonsils of normal persons in 90 per cent. and from the depth of tonsils in 80 per cent. of their cases. Furthermore, they emphasize especially the number of streptococci in the individual throat. For this reason, they investigated the percentage of throats showing over 50 per cent. of hemolytic streptococci as compared with the other organisms on a plate. They found 11.4 per cent. in normal throats in the camp organization; 10.1 per cent. in normal throats among the laboratory workers; 47.6 per cent. from patients with upper respiratory infection; 42.8 per cent. from patients convalescent from pneumonia, and 30.1 per cent. from patients with empyema.

Smillie[20] found that about 50 per cent. of normal throats harbored hemolytic streptococci, but the Beta type of streptococci he found only once in the 100 normal throats studied.

After studying streptococci from scarlatinal and normal throats, Ruediger[21] concluded that hemolytic streptococci were present in 59 per cent. of the normal throats and constantly in abundance on the tonsils of patients with tonsillitis and scarlet fever.

Davis,[22] studying the bacteriology of tonsils from various diseases, presents his results as follows: Twenty-five of twenty-eight cases of arthritis, nine of ten cases of nephritis, six of ten cases of endocarditis, and fifty of sixty-one cases of tonsillitis hypertrophy gave hemolytic streptococci in the crypts of the tonsils.

14. Nichols, H. J., and Bryan, J. H.: The Tonsils as Foci of Infection in Streptococcus Hemolyticus Carriers, J. A. M. A. **71**: 1813 (Nov. 16) 1918.
15. Keegan, J. J.: The Prevailing Pandemic of Influenza, J. A. M. A. **71**: 1051 (Sept. 28) 1918.
16. Blanton, W. B., and Irons, E. E.: A Recent Epidemic of Acute Respiratory Infection at Camp Custer, Mich., J. A. M. A. **71**: 1988 (Dec. 14) 1918.
17. Friedlander, A.; McCord, C. P.; Sladen, F. J., and Wheeler, G. W.: The Epidemic of Influenza at Camp Sherman, Ohio, J. A. M. A. **71**: 1652 (Nov. 16) 1918.
18. Opie, E. L.; Freeman, A. W.; Blake, F. G.; Small, J. C., and Rivers, T. M.: Pneumonia at Camp Funston, J. A. M. A. **72**: 108 (Jan 11) 1919.
19. Blanton, W. B.; Burhans, C. W., and Hunter, O. W.: Studies in Streptococcic Infections at Camp Custer, Mich., J. A. M. A. **72**: 1520 (May 24) 1919.
20. Smillie, W. G.: Beta Hemolytic Streptococcus, J. Infect. Dis. **20**: 45 (Jan.) 1917.
21. Ruediger: J. Infect. Dis. **3**: 755, 1906.
22. Davis, D. J.: J. Infect. Dis. **10**: 148, 1912.

HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT OF DISPENSARY PATIENTS

Cultures have been made from the nose and throat of 567 persons on blood agar plates and studied. The presence of hemolytic streptococci of the Beta type is spoken of as a positive culture. Most of the patients were from the services of Dr. E. L. Kenyon and Dr. T. W. Lewis in the Central Free Dispensary, Rush Medical College. To them, I am greatly indebted.

Technic.—A sterile cotton swab was rubbed against the tonsils, the anterior pillars of the fauces, and the posterior wall of the pharynx in such a way as to avoid other parts of the mouth as much as possible. The nasal cultures were taken as follows: The nostrils were opened wide with a nasal speculum, and a sterile

TABLE 1.—CARRIERS OF HEMOLYTIC STREPTOCOCCI AMONG DISPENSARY PATIENTS

Sex*	Age	Diagnosis	Condition of Throats	Remarks	Hemolytic Streptococci Colonies
♂	9	Hypertrophy of tonsils	Normal	Recurrent attacks of cold	5 throat
♂	12	Hypertrophy of tonsils	Normal	No other symptom	16 throat
♀	10	Hypertrophy of tonsils	Normal	No other symptom	21 throat
♀	13	Hypertrophy of tonsils	Normal	No other symptom	3 throat
♂	13	Hypertrophy of tonsils	Normal	No other symptom	7 throat
♀	21	Hypertrophy of tonsils	Normal	No other symptom	18 throat
♂	14	Hypertrophy of tonsils	Normal	No other symptom	31 throat
♂	12	Hypertrophy of tonsils	Normal	No other symptom	2 throat
♂	16	Hypertrophy of tonsils	Normal	No other symptom	4 throat
♂	10	Hypertrophy of tonsils	Normal	No other symptom	14 throat
♂	15	Hypertrophy of tonsils	Normal	No other symptom	12 throat
♀	7	Hypertrophy of tonsils	Normal	No other symptom	17 throat
♂	25	Hypertrophy of tonsils	Normal	No other symptom	10 throat
♂	10	Hypertrophy of tonsils	Normal	No other symptom	27 throat
♂	14	Hypertrophy of tonsils	Normal	No other symptom	3 throat
♂	15	Hypertrophy of tonsils	Normal	No other symptom	13 throat
♂	16	Hypertrophy of tonsils	Normal	No other symptom	2 throat
♂	12	Hypertrophy of tonsils	Normal	No other symptom	2 throat
♀	12	Hypertrophy of tonsils	Normal	Cough, headache	14 throat
♂	21	Hypertrophy of tonsils	Normal	No other symptom	31 throat
♂	15	Hypertrophy of tonsils	Normal	No other symptom	17 throat
♀	18	Hypertrophy of tonsils	Normal	No other symptom	9 throat
♂	12	Hypertrophy of tonsils	Normal	No other symptom	2 throat
♂	14	Hypertrophy of tonsils	Normal	No other symptom	14 throat
♂	9	Hypertrophy of tonsils	Normal	No other symptom	24 throat
♀	25	Hypertrophy of tonsils	Normal	No other symptom	22 throat
♀	12	Hypertrophy of tonsils	Normal	No other symptom	27 throat
♂	20	Hypertrophy of tonsils	Normal	No other symptom	14 throat
♂	10	Hypertrophy of tonsils	Normal	No other symptom	9 throat
♂	13	Hypertrophy of tonsils	Normal	No other symptom	5 throat
♀	10	Hypertrophy of tonsils and tonsillitis	Slightly inflamed	Dry cough, sore throat	28 throat 4 nose
♀	7	Hypertrophy of tonsils and tonsillitis	Slightly inflamed	Backache, sore throat	36 throat
♀	15	Hypertrophy of tonsils and tonsillitis	Slightly inflamed	Sore throat.....	47 throat
♂	8	Hypertrophy of tonsils and tonsillitis	Markedly inflamed	Fever, cough, sore throat	Pure throat culture
♀	11	Hypertrophy of tonsils and tonsillitis	Markedly inflamed	Constant cough, sore throat	14 throat
♀	7	Hypertrophy of tonsils and tonsillitis	Markedly inflamed	Sore throat.....	3 throat
♂	46	Acute tonsillitis.....	Markedly inflamed	Bad cold, headache	8 throat
♀	26	Acute tonsillitis.....	Markedly inflamed	Bad cold, headache	46 throat
♂	14	Acute tonsillitis.....	Markedly inflamed	Bad cold, headache	28 throat 2 nose
♀	35	Acute tonsillitis.....	Markedly inflamed	Fever, cough, membrane over tonsils	Pure throat 9 nose
♂	21	Acute tonsillitis.....	Markedly inflamed	Fever, cough, headache	25 throat
♂	19	Acute tonsillitis.....	Markedly inflamed	Sore throat, cough	45 throat
♂	14	Acute tonsillitis.....	Markedly inflamed	Sore throat, cough	21 throat
♀	21	Acute tonsillitis.....	Markedly inflamed	Sore throat, cough	13 throat
♂	46	Chronic tonsillitis.....	Inflamed	Sore throat every winter	27 throat
♂	15	Chronic tonsillitis.....	Inflamed	Constant cough for 2 years	3 throat
♀	37	Chronic tonsillitis.....	Inflamed	Cough for 3 mo.	14 throat
♀	14	Chronic tonsillitis.....	Inflamed	Cough, sore throat every winter	26 throat
♀	8	Follicular tonsillitis....	Markedly inflamed	Sore throat.....	29 throat

* In this column, ♂ indicates male, and ♀ female.

TABLE 1.—CARRIERS OF HEMOLYTIC STREPTOCOCCI AMONG DISPENSARY PATIENTS—Continued

Sex*	Age	Diagnosis	Condition of Throats	Remarks	Hemolytic Streptococci Colonies
♀	21	Follicular tonsillitis....	Markedly inflamed	Bad cold.....	11 throat
♀	33	Follicular tonsillitis....	Markedly inflamed	Three months ago bad cold	2 throat
♀	9	Peritonsillar abscess...	Markedly inflamed	Running from nose	21 throat
♀	37	Peritonsillar abscess...	Markedly inflamed	Fever, cold, headache	3 throat
♂	28	Chronic rhinitis.....	Normal	.....	9 throat
♂	19	Chronic rhinitis.....	Normal	.....	4 throat
♂	25	Chronic rhinitis.....	Normal	Recurrent attacks of sore throat	19 throat
♀	44	Chronic rhinitis.....	Slightly inflamed	Cough.....	14 throat 3 nose
♂	25	Chronic rhinitis.....	Slightly inflamed	Constant headache for 3 months	10 throat
♂	26	Acute pharyngitis.....	Markedly inflamed	Had influenza 2 months ago	26 throat 7 nose
♂	23	Acute pharyngitis.....	Markedly inflamed	Sore throat.....	18 throat
♀	34	Acute pharyngitis.....	Markedly inflamed	Sore throat, cough	22 throat
♀	19	Acute pharyngitis.....	Markedly inflamed	Sore throat, cough	36 throat
♀	24	Acute pharyngitis.. ...	Markedly inflamed	Sore throat, cough	14 throat
♀	18	Acute pharyngitis.....	Markedly inflamed	Sore throat, cough	4 throat
♂	45	Acute laryngitis.....	Markedly inflamed	Poor voice, headache	32 throat
♀	29	Acute laryngitis.....	Markedly inflamed	Cough, headache..	27 throat
♀	33	Acute laryngitis.....	Markedly inflamed	Cough, headache..	9 throat

* In this column, ♂ indicates male, and ♀ female.

cotton swab was then introduced into the nasal cavity as far back as possible and rubbed against the nasal mucosa. The swab was placed in a tube containing 2 c.c. of plain broth, immediately after a surface streak on a blood agar plate was made. With this broth another blood agar plate was made by the shake method in each case; this served to determine whether the hemolytic streptococci would be overgrown by other organisms on the surface streak. The blood agar plate was incubated at 37 C. and studied at the end of twenty-four and forty-eight hours' incubation. The number of hemolytic streptococci colonies, if any, was counted carefully.

The blood agar was made according to Becker's[23] standard blood agar method. From 4 to 5 ounces of plain agar were placed in a flask; this flask was heated until the agar was melted, and then cooled to from 45 to 50 C. Now 1 c.c. of the defibrinated goat blood was added to each 6 c.c. of agar. Approximately 7 c.c. were used for each plate. In the shake method, 1 c.c. of goat blood was added to 6 c.c. of melted agar in a tube at 45 C. This tube was incubated from the culture in broth, and the whole was thoroughly mixed and poured into a Petri dish.

Of 100 cultures made from the throat, sixty-seven showed the presence of hemolytic streptococci; of the nasal cultures, only five in 100 examined gave positive results. Of the 100 individuals, thirty-nine were schoolchildren sent for examination by their schools, and thirty-two, or 80 per cent. of them, harbored hemolytic streptococci in their throats. Of sixty-one average individuals of this series, thirty-five, or 57 per cent., were found as carriers. The higher percentage of carriers among schoolchildren so far examined is probably due to the tonsillar hypertrophy, as almost every schoolchild examined had large tonsils (Table 1).

In my experience, the shake method is more reliable than the surface streak in detecting the hemolytic streptococci. There were seven throat cultures that seemed negative on the surface streak plate but gave positive results by the shake method.

23. Becker, W. C.: J. Infect. Dis. **29**: 754 (Dec.) 1916.

RESULTS OF CULTURES OF THE TONSILLAR SURFACE COMPARED WITH THOSE OF CULTURES OF CRYPTS

One hundred and twenty-five pairs of excised tonsils were examined. Before each tonsillectomy, an ordinary throat culture was made and placed in 2 c.c. of plain broth. The tonsils, after removal, were placed in 25 per cent. silver nitrate for five minutes. The tonsillar capsule, if any, was removed by a sterile knife. One or two loopfuls of crypt contents were taken and placed in a broth tube. Blood-agar plates were made at once according to the shake method. The plates were studied after twenty-four hours' incubation and again later. The results are given in Table 2.

TABLE 2.—COMPARISON OF CULTURES FROM TONSILLAR SURFACE WITH THOSE FROM CRYPTS

	Positive Cultures from Tonsillar Surface		Positive Crypt Cultures	
Number of Cases	Number	Per Cent.	Number	Per Cent.
125.....	74	60	98	83

The outcome is quite in accord with the results of Davis[22] and Nichols and Bryan[14] in the United States Army, and Pilot's unpublished observations mentioned by Davis.[24]

THE INCIDENCE OF HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT AFTER TONSILLECTOMY

I have examined 342 persons, medical students and dispensary patients, to learn whether hemolytic streptococci are as frequently present in the nose and throat after tonsillectomy as before. Of this large number of tonsillectomized persons only seventeen throat cultures and ten nasal cultures made in the way described showed hemolytic streptococci. In six cases positive cultures were obtained from both nose and throat. In five of the cases giving positive throat cultures, rem-

TABLE 3.—INCIDENCE OF HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT AFTER TONSILLECTOMY

Case	Time of Tonsillectomy	Hemolytic Streptococci: Throat	Hemolytic Streptococci: Nose	Remarks
1	6 years ago.....	+	—	In good health
2	2 years ago.....	+	+	In good health; tonsillar remnants found
3	2½ years ago...	+	—	Recurrent attacks of cold
4	3 weeks ago....	+	—	Influenza last winter
5	Unknown.....	+	—	Backache; tonsillar remnants found
6	5 years ago.....	+	—	Sore throat 3 months ago
7	Unknown.....	+	+	Bad cold; throat in good condition
8	8 years ago.....	+	+	In good health
9	Unknown.....	+	—	In good health
10	5½ years ago...	+	—	Rheumatism; tonsillar remnant found
11	9 years ago.....	+	—	Rheumatism
12	2 months ago..	+	+	Acute nephritis 6 months ago; tonsillitis 3 months ago
13	2½ months ago	+	—	Influenza last winter
14	6 months ago..	+	+	Pleurisy 7 months ago
15	1½ months ago	+	+	In good health
16	5 weeks ago....	+	—	In good health; tonsillar remnants found
17	3 weeks ago....	+	—	In good health; tonsillar remnants found
18	2½ weeks ago..	—	+	In good health
19	3 years ago.....	—	+	Chronic rhinitis
20	Unknown.....	—	+	Rheumatism
21	Unknown	—	+	In good health

24. Davis, D. J.: Hemolytic Streptococci, J. A. M. A. **72**: 319 (Feb. 1) 1919.

nants of tonsils were found on careful examination; and it is also known that tonsillectomy had been done from three weeks to five years before (Table 3). These results appear to agree with those of Blanton, Burhans and Hunter, Nichols and Bryan, and Davis.

In order to learn whether hemolytic streptococci may be present or absent regularly in throats with the tonsils removed, four tonsillectomized persons previously found to be carriers, and eleven also tonsillectomized persons known to be noncarriers, were selected

TABLE 4.—CONSTANCY OF HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT OF TONSILLECTOMIZED PERSONS

	Noncarriers											Carriers			
Examinations:	1	2	3	4	5	6	7	8	9	10	11	12	13*	14	15*
First	—	—	—	—	—	—	—	—	—	—	—	+	+	+	+
Second	—	—	—	—	—	—	—	—	—	—	—	+	+	—	+
Third	—	—	—	—	—	—	—	—	—	—	—	—	+	—	+

* In cases 13 and 15, hemolytic streptococci were found in successive examinations, owing probably to tonsillar remnants in throats.

for subsequent examinations. The interval between the examinations varied from six to ten days. The result is given in Table 4.

CULTURAL CHARACTERISTICS AND MORPHOLOGY OF HEMOLYTIC STREPTOCOCCI FROM NOSE AND THROAT

Most of the surface colonies on blood agar plates appeared small, round, raised, moist and gray. They were surrounded at the end of twenty-four hours by a clear hemolytic zone, from 2 to 4 mm. wide. The deep colonies appeared in different shapes under the microscope: some were oval, some round with smooth edges, and others with irregular edges and nucleus in the center. Their hemolytic zone was usually narrower than that of the surface colonies. Three cultures from the throats of patients with acute tonsillitis produced large, flat, moist and gray colonies surrounded by a narrow hemolytic zone, but this characteristic was lost on subsequent cultures.

In smears from plain broth cultures after twenty-four hours' incubation at 37 C., all the strains were proved gram-positive. In some strains the cocci appeared spherical and in others elongated. There

TABLE 5.—FERMENTATION TEST

No. of Strains	Raffinose	Dextrose	Inulin	Lactose	Maltose	Mannite	Saccharose	Salicin	Plain
31	—	+	—	+	+	—	+	+	—
13	—	+	—	+	+	—	+	—	—
1	—	+	—	+	+	+	+	+	—

were nine strains of diplococci in short chains; the rest were arranged in long chains. All the strains were bile insoluble. In litmus milk all produced acid, and six produced a firm coagulation on the third day. Forty-five strains were tested for carbohydrate fermentation. The result is found in Table 5.

According to Holman's classification,[25] *Streptococcus pyogenes* ferments lactose and salicin but not mannite; *Streptococcus anginosus*, lactose but not salicin and mannite; *Streptococcus infrequens*, all three sugars. These forty-five strains, therefore, can be divided into these three groups according to their fermentation. Owing to lack of details of information it is not possible to say whether all these strains of hemolytic streptococci in throats studied by different authors are the same strains.

25. Holman, W. L.: J. M. Res. **34**: 377 (July) 1916.

CONCLUSION

The tonsils, especially when hyperplastic, are a breeding place for hemolytic streptococci, and complete tonsillectomy appears to be followed in most cases by the absence of hemolytic streptococci from the throat.

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INFECTIONS OF THE GENITO-URINARY TRACT COMPLICATING INFLUENZA*

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Medical literature for the past nine months has been flooded with reports and statistics relative to the influenza epidemic which has spread throughout this country and abroad. Complications involving the respiratory, circulatory and nervous systems have been recorded in large numbers, but little has been reported concerning the genito-urinary tract. One brief report[1] of four cases of focal infection of this tract is the sole contribution to date, other than references to the kidneys from a purely medical standpoint.

In a comprehensive review of the literature of the recent pandemic as it occurred in Europe,[2] it is stated that influenza recurs every twenty to thirty years in explosive waves spreading through whole continents, and that although twenty-seven years elapsed since the last pandemic, there has been neither an intelligent anticipation of the event nor certainty as to the true nature of the gigantic outbreak when it appeared.

A disease which causes such inroads on the community should certainly be studied in all its phases if similar outbreaks in the future are to be anticipated and a better knowledge gained of the complications and their management when these occur.

The teaching of the Pfeiffer school, that the Pfeiffer *B. influenzae* is the causative organism, and that the various non-Pfeiffer epidemics were not true influenza, was upset when Stephan, in August, 1917, described a diplococcus mucosus as the agent of a clinically typical endemic of influenza which broke out in December, 1916, in Strümpell's clinic at Leipzig. It is not necessary here to trace the subsequent bacteriologic history of this protean disease. It is safe to say, however, that the entry of various cocci into the bacteriologic arena will more and more direct attention to complications and sequelae other than those affecting the respiratory system. It is in this connection that attention may be drawn to involvement of the genito-urinary system and clinical observations reported.

Medical reports mention a general hyperemic condition of the kidneys.

Blanton, Burhans and Hunter[3] hold that it is impossible to divorce a discussion of streptococcic infection from such antecedent diseases as influenza, measles,

* Presented before the Thirty-First Annual Meeting of the American Association of Genito-Urinary Surgeons, Atlantic City, N. J., June 16-17, 1919.

1. Bronner, Herbert: Urol. & Cutan. Rev. **23**: 200 (April) 1919.
2. Medical Supplement to Review of the Foreign Press **1**: (March) 1918.
3. Blanton, J. B.; Burbans, C. W., and Hunter, O. W.: Studies in Streptococcic Infections at Camp Custer, Michigan, with Special Reference to Influenza and Other Antecedent Infections, J. A. M. A. **72**: 1520 (May 24) 1919.

and upper respiratory inflammations. Among other localizations of streptococci, these writers mention abscesses of the kidney.

Bradbury and Krumbhaar, in twenty-eight necropsies at No. 16 (Philadelphia U. S. A. Army) General Hospital, out of 533 cases of influenza, representing the height of the epidemic in that locality, found abscesses in the kidneys in two, among other lesions representing a general pyemia. The kidneys in other cases at necropsy showed dark congestion.

Sofrè,[4] of Naples, in summing up the principal features of the epidemic, gives severe acute nephritis as a constant finding in fatal cases.

Dalimier[5] found, in a systematic daily examination of the urine, the presence of a large quantity of albumin in a high percentage of cases quite distinct from febrile albuminuria. He has seen numerous instances of acute and even hyperacute uremia in such cases, and is inclined to believe that the cases of acute edema of the lung recorded by Ravaut[6] were really examples of this kind.

A large number of cases of acute nephritis with well marked edema and dropsy among soldiers from the front, and also among civilians, have recently been studied by Dünner and Pupko.[7] As the cases were observed during an outbreak of influenza, this disease suggested itself to the writers as the cause of nephritis. In all the cases the patient's serum agglutinated *B. influenzae* in from 1:200 to 1:400. The influenzal etiology of the nephritis was rather supported by (1) its occurrence during an epidemic; (2) the exclusion of other well-known causes of nephritis; (3) the fact that the nephritis was recent, and not a recrudescence of an old process.

Lichtenstern[8] observed fifteen cases of vesical hemorrhage which occurred on the third or fourth day of the disease, lasted on the average three or four days, and slowly subsided. Examination of the bladder showed considerable swelling and injection of the vesical mucous membrane, apparently due to subepithelial ecchymoses. The amount of the hemorrhage was usually very great. In one case severe hemorrhage occurred on the second day, and it was necessary to plug the bladder. In three cases well-marked diminution in the urinary secretion took place, and was accompanied by severe pain in both loins. These symptoms lasted for twenty-four hours, and then the amount of urine gradually increased. In two cases unilateral pyelitis developed.

Stengel[9] states that renal complications were apparently infrequent in the epidemic of 1889 to 1890. No figures could be given as to the frequency of albuminuria and cylindruria, but it is quite certain that very few cases of actual nephritis developed. In the pandemic of 1918 albumin and casts were very commonly found in the urine, and seemed to Stengel to be of little significance except when they were accompanied by other evidence indicative of nephritis. A few cases of acute hemorrhagic nephritis with pronounced uremic symptoms were observed in the series.

Of sixty-two urinary examinations made fairly early, Ely, Lloyd, Hitchcock and Nickson[10] found that twenty-six showed albuminuria and hyaline and granular casts; seven showed albumin only, and twenty-nine were normal. The kidneys, at necropsy, were found enlarged and congested, an edematous condition frequently being found about the suprarenals.

In a clinical study of influenzal pneumonia, Adolphus D. Rood[11] found that the kidneys presented nothing worthy of special note on microscopic examination. Most cases showed the urine of atoxic parenchymatous nephritis. The specific gravity was raised from 1.020 to 1.025 or 1.035, varying with its concentration. Albumin was found in nearly every case, and varied from a slight trace to 30 per cent. by volume, or even more. Rood considered its presence of prognostic value, although many patients recovered even with large amounts of albumin. Hyaline casts and cylindroids were present in varying amounts, but usually disappeared toward the end of lysis, or shortly after the temperature had reached normal. The presence of granular casts indicated that the patient was very seriously ill, and with few exceptions, when showers of granular casts were reported, the patient seldom recovered. It was striking to note how quickly the urinary picture cleared after toxic symptoms began to abate.

Riesman[12] considered it a striking feature of the majority of cases, both good and bad, in the recent epidemic in Philadelphia, that there was free diuresis, probably connected with the abundant water intake and fairly efficient kidney function. Albuminuria was commonly present; no more, however, than is seen in other acute infections. In a few cases a true hemorrhagic nephritis, with marked albuminuria, dark and light granular and cellular casts, and abundance of free blood, was noted. Even in some of these the quantity of urine kept up very well. A not infrequent symptom, sometimes overlooked, was retention of urine with great distention of the bladder.

While the foregoing gives evidence that the kidneys in the severe cases are overwhelmed by the intense toxemia which is shown in other organs of the body, it is surprising that more local complications in the genito-urinary organs have not been recorded. It is possible that in the extremely severe cases the patient is so ill that the local signs or symptoms are masked or overlooked.

The changes, varying from acute congestion to renal hemorrhages and severe nephritis, certainly predispose to acute infection of the kidneys, and the fact that we have seen thirty-nine cases of definite infectious foci in the genito-urinary tract makes us feel that these complications have been unrecognized and that careful histories taken in the future will disclose the starting point in many lesions in the influenza attack.

4. Sofrè, G.: Riforma med. **34**: 712 (Sept. 7) 1918.
5. Dalimier, R.: Bull. Acad. de méd, Par. **80**: 456 (Nov. 19) 1918.
6. Ravaut, P.: Bull. de l'Acad. de méd., Par. **80**: 290, 1918; reviewed in Medical Supplement, **2**: 24 (Jan.) 1919.
7. Dünner, L., and Pupko, S.: Berl. klin. Wchnschr. **65**: 56, 1919; reviewed in Medical Supplement **2**: 166 (April) 1919.
8. Lichtenstern, K.: Wien. med. Wchnschr. **68**: 2119, 1918; reviewed in Medical Supplement **2**: 166 (April) 1919.
9. Stengel, A.: The Influenza Epidemics of 1889 and 1918, M. Clinics N. America **2**: 645 (Nov.) 1918.
10. Ely, Lloyd, Hitchcock and Nickson: Influenza as seen at the Puget Sound Navy Yard, J. A. M. A. **24**: 24 (Jan. 4) 1919.
11. Rood, A. D.: New York M. J. **109**: 493 (March 22) 1919.
12. Riesman, D.: Influenza—Remarks upon the Symptoms, Prevention, and Treatment, M. Clinics N. America **2**: 903 (Nov.) 1918.

In twenty-two of these thirty-nine cases, kidney infections were shown in one or both kidneys; in five, perinephritic abscess was shown; in four, prostatic abscess; in one, perinephritis and prostatic abscess; in six, epididymitis, and in one, seminal vesiculitis.

KIDNEY INFECTIONS

The kidney infections were as follows: right pyelonephritis in fourteen, left pyelonephritis in two, double pyelonephritis in five, right pyonephrosis in one. Nineteen of these patients were females, three were males. The ages were as follows: under 20, 2; 20-29, 2; 30-39, 8; 40-49, 2; 50-59, 6; 60-69, 2; total, 22.

Of these twenty-two patients, fourteen gave a history of no previous urinary symptoms.

Four of these fourteen presented prolapsed kidneys which drained poorly, and two were pregnant. In two, the right kidney was prolapsed and involved, in two others, both kidneys were prolapsed and the infection was bilateral. All of the remaining eight gave a history of pneumonia complicating the influenza, and were profoundly toxic.

The histories of the eight patients with previous urinary symptoms were interesting. In three patients, a nephrectomy had been done twelve, ten and five years previously. In each case there was a well-marked pyelonephritis in the same kidney, the opposite kidney not being involved, and in each case the kidney was low and in two cases it was freely movable, yet these patients state that they had had no local discomfort since the operation until the attack of influenza. The fourth patient had a ureteral calculus, but had had no symptom of kidney infection until seized with the influenza. The fifth gave a history of two attacks of hematuria, four and two years previously, and examination revealed polycystic kidneys. The sixth gave a history of two attacks, seven and three years previous to this one, which were similar in every way and which were apparently attacks of pyelonephritis. The seventh had noticed frequency for eighteen years, but had no local kidney symptoms. The eighth gave a history of painless hematuria for eighteen months. A papilloma of the bladder was found. Four of these eight cases gave a history of pneumonia.

These twenty-two patients with kidney infections were seen during the height of the influenza attack or as late as six months afterward. From observation and the histories of these cases, the symptoms indicating a kidney involvement came on from four days to two weeks after the onset of the influenza, the average being nine days.

The symptoms were pain and tenderness in the kidney region; frequent, burning, painful urination, except in two cases in which the ureter on the affected side was occluded; high temperature, chills, malaise. In thirteen cases one or both kidneys could be palpated at the time of the examination.

Cystoscopic examination and ureteral catheterization revealed a very much injected bladder; distinct ecchymoses in six cases, moderate congestion in the others; poor drainage on the affected side in eight of the unilateral cases; pus and blood cells from the affected kidney, in each case, from both kidneys in the bilateral infections; profuse hematuria in two cases, and deficient function on the affected side in each case. Nineteen cases showed casts in the urine

Bacteriologic examination of the catheterized specimen revealed colon bacilli in twelve cases; staphylococci in three; diplococci in three; bacilli, reported as possible influenza, in three.

The cases of pyelonephritis were treated by catheter drainage, pelvic lavage, diet, colonic irrigation, and urinary antiseptics. The acute symptoms subsided rapidly. The uncomplicated cases have been cured; the others are improved.

The case of pyonephrosis necessitated a nephrectomy, and the case of ureteral calculus had a primary carcinoma of the kidney which had previously given no symptoms. This kidney was removed.

PERINEPHRITIC ABSCESS

There were five cases of perinephritic abscess, one a female, four males. The ages of the patients were 14, 21, 24, 31 and 46 years.

The patients presenting perinephritic abscess were all distinctly septic, having had severe attacks of influenza. Of the five patients, three had had pneumonia, two had other septic foci.

These patients were seen from seven days to four weeks after the acute onset, and the local symptoms, pain in the side and back, tenderness in the lumbar region of the affected side, had persisted from five days to two weeks when first observed. Each patient had a persistent temperature, three had chills, and in four there was distinct bulging in the flank.

One patient had frequent and painful urination. Cystoscopic examination and ureteral catheterization revealed no definite renal lesion in any case other than the urinary changes in acute renal congestion.

Incision and drainage was made in each case. In one case no pus was found, but the symptoms subsided at once.

Cultures showed streptococci in one, staphylococci in one, colon bacilli in one, and possible influenza bacilli in one.

All patients made a complete recovery. This was slow in two cases owing to the septic condition of the patient.

PERINEPHRITIC AND PROSTATIC ABSCESS

F. E., a man, aged 48, presented a perinephritic and a prostatic abscess. These foci were both well marked on his entrance into the hospital, four weeks after the onset of the influenza. His chief complaint, retention of urine, had been present for twenty-four hours. A large, boggy, tender mass was present in the prostate. Pressure on this bulging mass per rectum caused pus to exude from the meatus. Influenza bacilli and staphylococci were reported in the pus. A second bulging mass was palpable in the left costovertebral angle. Both foci were drained. The convalescence was slow, owing to the poor condition of the patient.

PROSTATIC ABSCESS

Four patients presented prostatic abscesses. The ages of the patients were 32, 44, 47 and 52. Two of these presented abscesses of large size, distinctly palpa-

ble by rectum, necessitating perineal incision and drainage; the other three presented one or more small foci distinctly palpable by rectum (a suppurative prostatitis), which drained by the urethra. These patients gave a history of the onset of the local symptoms ten, thirteen, seventeen and twenty-one days after the onset of the influenza. Two had pneumonia. Influenza bacilli were reported in one, staphylococci in two, and there was no bacteriologic report on the other two. Two of these patients gave a history of gonorrheal infections eleven and fifteen years previously, but no urinary symptoms subsequent to that time until the onset of the present trouble. One developed a urethrorectal fistula. All made good recoveries.

EPIDIDYMITIS

Acute epididymitis developed in six cases, from four to fourteen days after the onset of the acute influenza. The ages of the patients were 31, 36, 38, 44, 47 and 48. None of these patients had pneumonia or other complications. The epididymitis developed rapidly; the swelling became of large size, although not so large as gonorrheal epididymitis; it was painful, and subsided slowly; the urine became cloudy, in four cases showing pus, in two cases, colon bacilli, in one, staphylococci, and in one, streptococci.

There was no venereal history of recent date, nor were there previous urinary symptoms in any of these patients.

SEMINAL VESICULITIS

A man, aged 51, developed violent frequency, tenesmus and painful urination, three days after the onset of a severe attack of influenza. These symptoms persisted, and when I saw him, two weeks later, the physical and urologic examinations were negative other than for the presence of large, boggy seminal vesicles. The urine was clear until pressure was applied over the vesicles, after which it became cloudy with pus. Colon bacilli were found in the expression. The condition was entirely relieved by local treatment.

SUMMARY

These cases bear out the present understanding of the disease, namely, that the system of the infected individual is overwhelmed by a toxemia so severe that the resistance of the several organs is reduced, allowing various organisms to become active. The genitourinary tract is not an exception.

These cases demonstrate that kidneys once the seat of a lesion, or subject to interference with drainage, are more vulnerable when the individual is attacked by a severe infection. This should lead one to study the kidneys more carefully, favoring elimination, especially when they are known to be pathologic.

Perinephritic abscess, prostatic abscess, and epididymitis may be a part of any hematogenous infection.

Organic Heart Disease in Children.—The importance of safeguarding the growing heart in shown by the large number of cases of organic heart disease among children. In New York it is estimated that 2 per cent. of all schoolchildren are suffering from organic heart disease. That all cases of organic heart disease in children are not due to rheumatic infection is brought out by a report made by Dr. Goodman in a series of cases studied in the Jacobi Ward in the Lenox Hill Hospital, in New York, where 80 per cent. of the cases were due to rheumatic infection, 16 per cent. to contagious diseases of childhood and 4 per cent. to developmental defects.—Dr. Julius Levy.

ETIOLOGY OF EPIDEMIC (LETHARGIC) ENCEPHALITIS

PRELIMINARY NOTE*

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In previous articles[1] it has been demonstrated that there is present in the nasopharyngeal mucous membrane of patients suffering from epidemic encephalitis a filtrable virus capable of producing in monkeys and rabbits lesions typical of those found in the brain in human cases. By the use of Berkefeld (V and N) filtrates of nasal washings and nasopharyngeal mucous membrane from fatal cases, we were able to develop in monkeys and rabbits the clinical and pathologic pictures of the disease.

In the second article it was stated that cultivation of all material on ordinary laboratory mediums was negative both aerobically and anaerobically. We further stated that the studies by the Noguchi method had been undertaken and were then in progress. We now wish to describe the results of the latter studies on the nasal washings, nasopharyngeal mucous membrane, and brain in both human cases and inoculated animals.

The methods used were identical with those employed by Noguchi[2] for the cultivation of spirochetes. A successful growth was manifested on the fifth to the seventh day by clouding of the mediums, commencing about the region of the kidney tissue and extending rapidly upward to within about 1 cm. of the top of the ascitic fluid column. At times extensive disintegration and autolysis of the tissue caused deceptive clouding. By means of dark-field illumination and examination of control tubes and stained specimens, the positive cultures were disclosed. The clouded tubes were all recultivated on ordinary laboratory mediums to exclude contamination. The growth in solid mediums appears as minute colonies, more numerous about the region of the kidney tissue. The optimal solid medium is of a gelatinous consistency, made so by the addition of 1 part of 2 per cent. nutrient agar to 4 or 5 parts of ascitic fluid, the kidney tissue being added as usual. All control studies were negative with both fluid and solid mediums.

Smears were stained with Giemsa solution or with methylene blue after preliminary fixation in methyl alcohol. The organisms appear as small, globular, purplish or bluish bodies. They assume different arrangements, occurring singly, in diplo forms, chains or clumps. Larger degenerated forms are seen in older cultures. On dark-field illumination they appear mostly as diplo forms and as masses. They are not motile. The reaction to the Gram stain depends a great deal on the medium used and the age of the individual culture. Young cultures and those grown on solid mediums are mostly gram positive. Older cultures and those grown on fluid mediums tend at times to be gram negative.

* From the Pathological Laboratory of Mount Sinai Hospital. Aided by a grant from the Altman Fund of the Neurological Division.

1. Strauss, Hirshfeld and Loewe: New York M. J. **109**: 772 (May 3) 1919. Loewe, Hirshfeld and Strauss: J. Infect. Dis., to be published.

2. Noguchi, Hideyo: J. Exper. M. **14**: 99, 1911; **15**: 90, 1912; **16**: 199, 211, 1912. Flexner, Simon, and Noguchi, Hideyo: Experiments on the Cultivation of the Virus of Poliomyelitis, J. A. M. A. **60**: 362 (Feb. 1) 1913; J. Exper. Med. **18**: 461, 1913.

As a whole, in morphology, appearance of colonies and growth, the organism resembles that described by Flexner and Noguchi[2] in poliomyelitis. It differs in results obtained with animals and particularly in the susceptibility of rabbits to this organism.

Up to the present time, the filtrable organism has been carried to the twelfth generation. It has been recovered from the brains of rabbits and monkeys injected with filtrates of human nasopharyngeal mucous membrane and of brains of inoculated animals. Monkeys and rabbits injected with the later generations (seventh to eleventh) of the organism, originally obtained from human mucous membrane and not previously passed through animals, have succumbed with typical symptoms. Necropsy findings and microscopic pictures are characteristic of those found in the human being. The organism was recovered from the brains, and, in a few instances, from the mucous membranes of the nasopharynx of these animals. Use of the later generations excludes the possibility of the transmission of sufficient original virus to produce any such results.

The organism was recovered from 50 per cent. glycerinated filtrate of human nasopharyngeal mucous membrane kept on ice for four months. The organism remains viable and virulent in cultures for a period of at least six weeks.

OPEN AIR CLASSES *

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The Bureau of Child Hygiene of the department of health of New York City conducts only activities of preventive medicine. These activities cover a period of the child's life from the prenatal state until the completion of the elementary school. The activities are controlled by definite divisions of the bureau to cover various periods of life, as well as special activities. The division of baby welfare supervises the prenatal work and care of the infant from birth until the second year is reached. The division of midwives and foundlings issues permits to midwives and supervises their methods in carrying on their practice. It also issues permits for the privilege of keeping foundlings, and supervises the care they receive. The division of school medical inspection conducts a progressive campaign of preventive medicine throughout the year, both in the schools and in the homes of the pupils. The division of employment certificates issues certificates only to schoolchildren of correct age who are in physical condition to work. There is a division of eye clinics and a division of dental clinics which conduct their special branches of medicine exclusively for the benefit of schoolchildren.

The preschool age of the child, that is, from the second year until the child's entrance into school, is not systematically supervised. Some pioneer work has been done by our bureau, and the necessity and value of it have been conclusively proved. This period of the child's life can no longer be neglected, and one of the next steps in public health and preventive medicine will be the giving of more attention to it.

One of the activities of the division of school medical inspection is the medical supervision of the open air classes of the public schools. The pedagogic work of these classes is conducted entirely by the board of education.

The classes were organized to provide special opportunities for the physically subnormal pupils, after an experiment had been conducted in one class to ascertain the value of such organization. The results have been so gratifying that there are now 110 open air classes. The classes are at present located on the roofs of the school buildings, roofs of auditoriums, in public parks and in the school buildings.

Our experience has proved that in a large city these classes are best placed in the school building, in a classroom properly located and with the required structural changes. Besides, it is difficult to protect them from the rain, snow, direct sunlight and dust. Roofs require the climbing of too many stairs. Locations in the parks would be ideal were it not for the expense of the structures required. Besides, in our city, the parks available are so inadequate that only a small number of classes can be located in them. When the original school building is being constructed, very little additional cost is added by providing one or more open air classrooms. The board of education now provides at least one open air classroom in every new school building.

At present the following types of children are admitted to the open air classes:

1. Children exposed to tuberculosis at home, or in whose family there has been a recent death from this disease.
2. Children who have had tuberculosis which is now arrested or cured.
3. Children suffering from malnutrition.
4. Children who become tired easily or show languor or fatigue before the end of the day, and on this account are unable to carry on their class work.
5. Children suffering from nervous diseases except chorea.
6. Children who frequently are absent because of colds, bronchitis, etc.
7. Children suffering from cardiac disease, who are recommended by the private physician as pupils who ought to be put in these classes.

The classification provides for the tuberculous, pretuberculous and physically subnormal children who may be benefited by becoming pupils in one of these classes.

The regular equipment for open air classes consists of individual school study chairs, cots and sleeping bags. The study chairs are easily movable, and groups of any of the children can be formed for the convenience of the teacher. The children use their sleeping bags when sitting in their study chairs or lying on their cots.

The important factors in the success of this work are fresh cool air, light, food, correction of physical defects that retard growth and development, and proper hygienic living conditions. These are all provided for during the school session. But it must be borne in mind that the children are in school only five hours a day on school days and that we have about 190 school days a year.

During the school hours, the children are completely under control and receive the care they require. The classrooms have ample light and air, as they are always located where these can be provided. Our choice is always a southern and eastern exposure when these are procurable. We have found that the cold air

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is a decided advantage and that no temperature is too low, provided the children are properly protected by their clothing and their sleeping bags. The greatest increase in weight is always made during the colder weather. With the first return of warm weather, the increase of weight is retarded. This is, to a great extent, because of the influence of the temperature on the appetites of these children. Their appetites are always better in colder weather.

Food is one of the essentials for children of these types, and we have found that three meals a day are not sufficient to assist them to a normal average weight. Extra feeding is always provided between breakfast and lunch and, as far as possible, between lunch and supper. This extra food is absolutely required by the children during the colder weather, and they all anxiously await it. Milk and bread and butter are the best foods for them; but our funds, which all come from private sources, have been limited, and for the past year and a half we have had to rely on cereals and milk. All classrooms located in new buildings, as well as many in the old ones, have a separate kitchen in which to prepare the food.

The children whose growth and development has been retarded because of physical defects, such as adenoids, hypertrophied tonsils and carious teeth, respond very quickly after their defects are properly remedied. Though they would in most cases improve in regular classes after correction of their defects, the improvement is more rapid when they have the advantages provided in the open air classes. Nearly all of these children having physical defects improve while in these classes, but return to their previous condition rapidly if sent back to a regular class.

TABLE 1.—DAILY ROUTINE OF AN OPEN AIR CLASS

9:00 to 10:00 a. m.	School Work
10:00 to 10:15 a. m.	Extra feeding
10:15 to 11:00 a. m.	School work
11:00 to 12:00 noon	Rest period
12:00 to 1.00 p. m.	Lunch period
1:00 to 2:45 p. m.	School work
2:45 to 3:00 p. m.	Second extra feeding

In school, the children have frequent short recesses for recreation. They have a rest period of one hour before lunch, during which time all children lie on their cots. Some learn to sleep during this period, but many merely rest. The daily routine followed in an open air class (Table 1) divides the day into three periods: two hours for school work, two hours for rest and lunch and, again, two hours for school work. We have the long rest period before lunch, as we have found that if we stop the school work after two hours to give the children a long rest, they do not become overfatigued. They recuperate rapidly, and by lunch time are fully back to their normal condition; and, furthermore, not being fatigued, they have good appetites, and derive the benefits which accrue from eating large meals.

Classes that are located on the upper floors have a rest period from 1 to 1:10 p. m. also. The time is deducted from the morning period of rest, and is given to afford the children a short rest after climbing so many stairs.

Parents are instructed to have their children rest at home before supper, and they are also urged to continue the morning extra feeding and to see that the children rest during the usual time on those days when the school is not in session.

The most difficult problem we have to contend with in a large city is that of the hygienic conditions at home. They entail a great deal of social service work, which, however, our teachers and nurses willingly do. This work may appear foreign to the subject, but it cannot be neglected, for all the results gained in school will avail nothing unless the home conditions are properly corrected.

From our present experience, I believe that the factors already enumerated are the important ones, and none of them can be slighted if success is to be our goal.

MEDICAL ATTENTION AND TEACHERS

The classes are visited daily by the school nurses of the health department. Their duties are definitely defined, and they work in cooperation with the medical inspectors and the teachers. The medical inspectors of the health department have full medical charge of these classes. They admit and discharge pupils, make regular systematic physical examinations of all pupils, and repeat the examination in any individual case as often as the child may require it. All the work of the nurses and inspectors in the classes and in the homes of the pupils is recorded on individual record cards for each pupil.

The medical inspectors decide the extent of physical exercise in which each pupil is permitted to participate. The department of physical training of the board of education supervises the exercises and play, and regulates them for each pupil according to the limitations ordered by the medical inspectors.

The scholastic work is entirely under the supervision of the board of education. The classes are limited to a registration of twenty-five pupils. As these pupils are usually in various grades, the group method of teaching is used. Only essential subjects can be taught.

Teachers of open air classes are specialists, and only those filling the required qualifications are selected. The qualifications considered essential are: good health; even temperament; capacity for doing a large amount of school work well, as a number of grades must be taught; physical ability to make home visits; tact in handling both children and parents; willingness to do social service, and a desire to study the problems of this work in the class by reading and taking an appropriate study course.

A poor teacher, or one not physically strong, is a great handicap to an open air class, as the success of the work rests to a great extent on her.

RECORD OF PUPILS

Children who are transferred from the open air class to a regular class are seen at least once a month by the nurse, who keeps a record of their condition, weight and scholastic standing. Of 506 children transferred, 367 were followed up, with the results observed in Table 2.

TABLE 2.—CASES DISCHARGED FROM OPEN AIR CLASSES

Gained Weight	Remained Same	Lost	Scholarship Improved	Same	Worse
319	43	5	70	292	5

The effects on all pupils in the open air classes are shown in Table 3.

Those children who failed to gain in weight were suffering from physical defects of such marked char-

acter that it is most reasonable to attribute their failure to gain to this known cause. The children who failed at least to maintain their regular scholastic standings are mental defectives, as their previous records show. These children ought not be placed in open air classes, as it is impossible to give them there the attention they demand.

TABLE 3.—PROGRESS OF ALL PUPILS IN OPEN AIR CLASSES

Gained More Than Average	Average Gain	Less Than Average	Scholarship Improved	Same	Worse
2,131	796	79	718	2,198	90

We have one open air class with pupils of the usual average physical condition. This class has been conducted by the same teacher for five years, and the pupils, all boys, are in one of the grades of the last two years of the elementary school. It is a regular class placed in an open air classroom. All the work of their grade is covered. They have no cots, and only short recesses without a rest period. They do receive the morning extra feeding. They do their drawing and shop work in a regular classroom during the cold weather. All the rest of their school work is done in their own room, which is always at the temperature of the outside air. This class has a registration of forty-five pupils.

The observations made during the past five years, of ten separate classes, fully demonstrate many facts which are all proved by the records of the various classes. These results can be best summed up by drawing a comparison between the scholastic and physical records maintained in the open air classrooms and those in the regular classrooms of the same grades, as shown in Table 4.

TABLE 4.—STANDARDS IN OPEN AIR CLASS ROOM AS COMPARED WITH THOSE IN REGULAR CLASS ROOMS

	Pupils	Teacher
Scholastic Record	Work: Full work or more. Penmanship: Satisfactory. Application: Better ..... Progress: More rapid.... Effort: Increased ..... Written work: Not handicapped. Absences: Decreased .... Sickness: Lessened ..... Promotions: Higher Average. Less home work required.	Easier to get results. Less mental tax. Can cover more than prescribed course in assigned time.
Physical Record	More active and responsive to work. Display ability and willingness to do more. Show an increase in weight more than the average gain. Show no fatigue from scholastic work.	Physical condition easily maintained. No loss of weight. Absences less. Daily fatigue not appreciable.

The improvement in the physically subnormal children in open air classes over those in regular classes is now a well established fact, and the only handicap is the number of such classes necessary. A great many more are required than are now provided for; but we are unable to use many more classrooms for only twenty-five pupils while there are so many part time classes in existence in our city. The open air classroom is still an experiment and must remain so until we have ample school buildings to permit the organization of as many open air classes as are required.

OPEN AIR CLASS WORK FOR ALL PUPILS

Our experiment with a regular class in an open air classroom opens up another field, however; now that there is such an active campaign to improve the physical condition of the nation, there appears to us no better way to effect the improvement than by extending the use of the open air classroom to every schoolchild. If the routine can do so much for the subnormal, is it not natural to expect at least as much for the average child? To change to open air class work would naturally entail a marked reform in our school buildings and could not be immediately put into operation. But we do look forward to the time when we will strive to raise a hardy race and not hothouse plants. A building properly constructed would require no heat in any other classrooms than those used for manual work, such as shop work, designing, cooking, etc., provided the children were properly equipped to be protected from low temperatures. Such a step would be a great progress in preventive medicine. Any one who has the opportunity of visiting a regular and an open air classroom during the winter can readily decide for himself which one is conducive to growth, development and health. We look forward to the time, not far off, when we shall be able to conduct an entire school of normal children as an open air class school.

RESULTS

From the observations made so far, these results of open air class work can be enumerated:

1. Physically subnormal children improve in their mental and physical condition.
2. Their nutrition and weight improve.
3. The gain, in most instances, will be permanent.
4. In arrested cases of tuberculosis there are no relapses.
5. The nervous system is restored to a normal condition.
6. In cardiac cases pupils kept under proper medical supervision improve markedly.
7. The capacity for doing work is increased and brought to at least a normal average.
8. Absence from school on account of illness is greatly reduced.
9. A proper diet is followed, and the food is properly prepared.
10. Good habits are established.
11. Hygienic rules are lived up to.
12. Children learn how to do the right things at the right time.

It is our firm belief that average children will give even better results if afforded the same opportunities.[1]

ABSTRACT OF DISCUSSION

MISS ANNIE MORRISON, Grand Rapids, Mich.: I find that the dangers with the ungraded rooms are often greater than the dangers with the normal children in the realm of education. As to the personal guidance, when the abnormal children reach the age at which they go to work, between 14 and 16, is there any vocational guidance in New York for these children? We find that when the child in the ungraded room of the open air school leaves the school and goes to work, it ought to be guided, because it is not fitted bodily for the average work which is required of a physically fit laboring man or woman. Then, again, is any study given to the kind of work that the child afflicted with tuberculosis should be engaged in after the school age.

1. A detailed account of the method of conducting open air classes of New York City appeared in the Monthly Bulletin of the Department of Health, City of New York, October, 1918.

CEREBELLAR ABSCESS *

WELLS P. EAGLETON, M.D.
NEWARK, N. J.

The problems presented in the surgical treatment of cerebellar abscess are far from solution; many of the statements current are incorrect, while the operative mortality is still very high.

In order to determine the exact situation of the intradural suppuration and other pathologic facts which may have a surgical application, I have, with the assistance of Dr. Robbins, examined all the recorded postmortem reports of patients dying from cerebellar abscesses.

SURGICAL ANATOMY OF THE POSTERIOR FOSSA

Surgically, the descending portion of the lateral sinus divides the intradural contents of the posterior fossa into two unequal portions:

1. The anterior one third (enclosed within the inaccessible triangle of the petrous pyramid and the basilar portion of the occipital bone in front and the lateral sinus behind), which contains the anterior third of the cerebellum, the pons and most of the medulla.

2. The posterior two thirds, containing the lateral lobes of the cerebellum and the posterior portion of the medulla. (The more forward the sinus the greater the surgical inaccessibility to the contents of the anterior triangle of the posterior fossa.)

The position of the lateral sinus necessitates exploration and drainage, either: (*a*) behind the sinus; (*b*) in front of the sinus, or (*c*) through the sinus.

Examination of the postmortem reports of cerebellar abscess shows that in a general way the position of the abscess in or on the cerebellum is influenced by the route of the extension of the infection into the cerebellum. Determination of the route of infection then becomes of the greatest surgical importance, especially as experience has demonstrated that exploration and drainage through the original route of infection results in a higher proportion of recoveries than by any other method. Consequently, the diagnosis of the route of infection into the cerebellum will largely influence the operative procedure.

Origin of Abscesses.—Of 117 postmortems on cerebellar abscesses, ninety-nine were shown to be of otitic origin, two from sphenoid sinus suppuration, two metastatic, two traumatic, two tuberculous, one carcinomatous, and one syphilitic.

Immediate Occasion.—As a large number of cases are recorded of cerebral symptoms appearing immediately following a radical mastoid operation, or during the dressing of the wound, the inference is forced that the cerebellar abscess was either the direct result of the surgical manipulation, or was occasioned by secondary infection during the dressing of the mastoid wound.

Operative manipulation apparently induces a different variety of intradural suppuration, depending on whether the suppurative bone lesion is acute or chronic. Operations for acute suppuration, while occasionally inducing a suppurative meningitis, apparently do not cause brain abscess without the intermediary of a sinus thrombosis; however, in chronic suppurative otitis, operative manipulation (or secondary infection) may originate a retrograde infective thrombosis within the vessels of the bone from which infection may be carried directly into the cerebral tissue.

There are two distinct pathologic processes in the causation of cerebellar abscess: (1) direct extension through the dura, causing intrapialarachnoid abscess, and (2) nutritional death of cerebral tissue following vascular occlusion by a retrograde septic thrombosis causing intracerebellar abscess.

Surgically, the cerebellar abscesses, according to their position and origin, should be divided into: (1) intracerebellar, without macroscopic evidence of cortical involvement, and (2) intrapial arachnoid, limited to the meshes of the pia-arachnoid and the inner surface of the dura.

Growth of Abscess.—The number of microscopic examinations of the blood vessels is small, but sufficient to leave little doubt that the usual origin of intracerebellar abscess is nutritional disturbance, following vascular occlusion, the result of retrograde septic thrombosis of an intracerebral vessel, so accounting for the intracerebellar abscess being uniformly situated within the white substance, internal to the anastomosing vessels of the cortex, and distant several millimeters from the cortical surface. As the abscess enlarges, the extension still leaves the cortex unaffected.

TABLE 1.—ROUTES OF INVASION TO CEREBELLUM IN ONE HUNDRED AND TWENTY-FIVE CASES

			No. Cases	Per Cent.
Labyrinth				
Labyrinth	19			
Semicircular canals	6			
Vestibular aqueduct	11			
Retrograde thrombosis from empyema of the vestibular aqueduct	1	17		
Ductus endolymphaticus or sacculus endolymphaticus	5			
			56	44.8
Internal auditory meatus	7			
Facial nerve	1	8		
Subarcuate hiatus	4			
Fold passing from dura to mastoid cells, probably subarcuate hiatus	1	5		
Undetermined, but thought to be by "preformed way"	1			
Caries of petrous bone*			22	17.6
			78	62.4
Sinus thrombosis			41	32.8
Necrosis of mastoid			3	2.4
Metastatic, from pulmonary suppuration			1	8
Unclassified—				
Fistula of dura from extradural abscess, probably perisinuous from description	1			
Fistula of neck	1		2	1.6
			125	100.0

* There can be no doubt that many of these were labyrinth cases.

Carefully conducted postmortem examinations of cases in which no operative manipulation has been instituted, show a distinct zone of unaffected cortical tissue between the site of the focus of infection and the abscess cavity even in large abscesses.

Associated Internal Hydrocephalus.—Internal hydrocephalus is definitely recorded in twenty-seven cases, sufficient, in conjunction with the experimental evidence, to leave no doubt that internal hydrocephalus occurs in all cases of cerebellar abscess in which the irritation is of duration.

The surgical importance of the associated internal hydrocephalus is not generally appreciated. Its relief by ventricular puncture will reduce the excessive her-

* Read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

niation of the brain, which so frequently renders exploration and evacuation difficult.

Route of Invasion.—In an examination of 125 cases the labyrinth itself was the cause of the cerebellar abscess in fifty-six cases, or 44 per cent.; caries of the petrous portion of the temple in twenty-two, making a total involvement through the posterior surface of the petrous pyramid of over 62 per cent.

Caries of the mastoid was the cause in three, or 2.4 per cent.; sinus thrombosis in forty-one, or 32 per cent., and other avenues in three, or 2.5 per cent.

In other words, if we surgically follow the route of infection, 62 per cent. of the cerebellar abscesses will be approached from in front of the sinus.

Association of Sinus Thrombosis and Labyrinthitis.—Of ninety-seven, the total number of cases of infection from the labyrinth and sinus thrombosis, thirteen, or 13.3 per cent., had both labyrinthitis and sinus thrombosis, showing the intimate association of the blood stream infection with cerebellar abscess, and disposing of the view that cerebellar abscess secondary to labyrinthitis is necessarily located in the anterior one third of the cerebellum.

Sinus Thrombosis Secondary to Cerebellar Abscess.—Six cases of partially or completely healed thrombosis are reported. The healed thrombus apparently being secondary to the cerebellar abscess, not the primary cause of it, the abscess having pressed the inner walls of the sinus outward, the thrombosis being the protective process of the blood vessel itself to prevent general infection.

From the time of Koener it has been stated that 42 per cent. of all abscesses of the brain were by direct invasion. So fixed is this view that it has been overlooked that many pathologic processes of surgical importance may be secondary to the abscess itself, namely, adhesion of the dura to the cerebellum; establishment of a stalk; and sinus thrombosis.

Intrapial Abscess.—Ten intrapial arachnoid abscesses are recorded, situated on the surface of the cerebellum either internal to the sinus or behind the posterior portion of the petrous pyramid, from which positions they may extend in any direction.

Intracerebellar Abscess with Stalk.—The presence of a stalk has been regarded as of frequent occurrence, and surgically an effort is frequently made to follow this path of infection. Examination of the postmortem reports would suggest that ordinarily it originates either by an extension of the necrosis from within outward, or by operative manipulation, and generally does not appear at the time of the extension of the infection through the dura and cortex.

Multiple Abscess.—Ten cases are recorded as multiple; two cases are recorded as bilateral.

Secondary Abscess.—Examination of the postmortem reports lead me to believe that probably all secondary abscesses are either metastatic or due to imperfect primary evacuation.

Size of Abscess.—The average intercerebellar abscess reported was the size of a small walnut. From this they extended in size to an involvement of the whole of the lateral hemisphere, and even to the opposite hemisphere.

Situation of Abscess.—No relation uniformly exists between the point of infection and the situation of the abscess that can be utilized surgically.

The intracerebellar and intrapial arachnoid abscesses are rather uniformly distributed on all surfaces and in all parts of the lateral hemispheres of the cerebellum. The middle lobe, however, is only infrequently the site of an abscess. Metastatic abscesses from pulmonary suppuration occur within the middle lobe, but of the other four recorded cases of middle lobe abscess none are above suspicion of not being either metastatic in origin, or of having originated from explorative punctures of the cerebellum.

The supposition that an abscess which originates from the labyrinth or petrous pyramid will be located in the anterior one third of the cerebellum, and consequently will be reached by exploration in front of the sinus, is not borne out by postmortems. Intercerebellar abscesses, situated in the substance of the cerebellum itself, are not uniformly near enough to the posterior surface of the petrous pyramid to be successfully explored and completely evacuated through the small space in front of the sinus. A large number of unsuccessful explorations are recorded.

It is true that intrapial arachnoid abscesses originating from the posterior surface of the petrous pyramid and the inner surface of a necrotic sinus are connected with the original focus of infection, but from these points of origin intrapial arachnoid abscesses extend great distances, either upward under the tentorium, or downward along the under surface of the cerebellum. Moreover, it is impossible to drain an intrapial abscess by simple evacuation. The dura over every portion of the abscess must be incised, so that every drop of pus is actually outside the dura; otherwise the pressure from the brain against the dura will cut off the unevacuated portions, and the suppurative process will continue to extend. Failure to appreciate the uselessness of drainage alone in intrapial arachnoid abscess is accountable for the high mortality in this otherwise favorable type of cerebellar abscess.

TABLE 2.—SITUATION OF ABSCESS IN CEREBELLUM

	No.
On or near anterior surface of cerebellum	30
In posterior two thirds of cerebellum	23
Whole of lateral hemisphere	11
On or near lower surface	6
On or near lower and mesial surface	3
On or near upper surface	1
On or near posterior and mesial surface	1
Lateral surface	1
Opposite lobe	2
In middle lobe	3
Not stated	36
Total	117
Multiple abscesses	10
Bilateral	2

SURGICAL CONCLUSIONS

The location of a cerebellar abscess may be in any part or on any surface of the cerebellum. Some time ago I formulated the operative postulate that "a cerebellar abscess originating from the petrous pyramid is located in the surgical anterior third of the posterior fossa, viz., on or near the anterior surface of the cerebellum, and should be explored and drained in front of the sinus"; while "a cerebellar abscess originating from thrombosis of the lateral sinus is apt to be situated in the surgical posterior two thirds of the posterior fossa, viz., on or in the lateral lobes of the cerebellum," and consequently "should be explored and drained either through the inner sinus wall or behind the sinus."

The published postmortem records demonstrate that the site of intradural cerebellar abscess is not propor-

tionately large enough, no matter what the origin, to admit of a routine exploration either in front of or behind the sinus. Despite the fact that 62 per cent. of all cerebellar abscesses originate from the petrous pyramid, and notwithstanding the importance of the surgical localizing value of a dead labyrinth (namely, with a dead labyrinth, the cerebellar abscess is likely to be on or near the anterior surface of the cerebellum, frequently admitting of operative localization by exploration in front of the sinus), the number of cerebellar abscesses of labyrinthine or perilabyrinthine origin that are not accessible by this route is large enough to preclude its routine employment.

Similarly, cerebellar abscesses, originating from a thrombosis of the lateral sinus, while generally located on or in the posterior two thirds of the cerebellum, are frequently so situated, either on the upper or under surface of the cerebellum, as not to be accessible by puncture from behind the sinus.

In the treatment of cerebellar abscess, to meet the surgical requirement that the operative procedure may be attended by a systematic exploration which will admit of a uniform operative localization of the suppuration and its complete evacuation, it is necessary in all cases:

1. To obliterate and doubly ligate the descending portion of the lateral sinus. The sinus, no matter how large, may be quickly obliterated and ligated by invulsing the external wall into its cavity.[1]

2. To expose the dura of the whole cerebellar fossa of the affected side; and, as the affected hemisphere occupies a position beyond the medium line, the bone over the unaffected hemisphere should be freely removed.

3. To perform a ventricular puncture in order to relieve the internal hydrocephalus.

4. Then to incise the dura as far forward as possible, the incision extending outward through the obliterated sinus and continued in whichever direction necessary.

Because of the variety of situations of cerebellar abscess as found at postmortem, no other surgical manipulation promises uniformly to locate the abscess or allow of its complete evacuation, and the introduction of drainage material within the abscess itself.

ABSTRACT OF DISCUSSION

Dr. George F. Cott, Buffalo: As to the mortality, some claim 20 per cent. and some from 40 to 50 per cent., but mine has been 100 per cent. I have not had more than six or seven cases of brain abscess in the last twenty-five years, and two of these were cerebellar abscesses. The doctor spoke of the radical mastoid operation being done when there is a cerebellar abscess. He must remember that when we are called to the country to operate we have neither hospital, nor nurse, nor time to study the case; we have nothing, except a patient in bed with a chronic suppurative middle ear and we are supposed to give relief. I have seen a number of these patients die who no doubt had brain abscess of which we knew nothing. Every case of chronic middle ear suppuration should be studied carefully before we decide what to do; in that way a cerebellar abscess may be discovered which would otherwise escape detection.

Prof. Fernand Lemaitre, France: Before discussing the paper of Dr. Eagleton I wish to express my appreciation of the great honor you have done me by electing me to honorary membership in your society. With your permission I shall relate some of my observations in cases of cerebellar abscess. In cases of cerebellar abscess of static origin the route of surgical approach is of prime importance. Three routes are before us: in front of, behind and through the lateral sinus. Which is the best? Considered from the purely anatomic standpoint, the posterior route is preferable, the anterior being too narrow (this is particularly true when the sinus is of the procedent type), and the middle route requiring opening the sinus. However, pathologic conditions greatly modify our choice of routes. The best route is the shortest. For this reason it is not possible to choose a route until the location of the pus is known. I have usually found the abscess located in the interior portion of the cerebellum, and for this reason I have usually used the anterior route. The great question, after all, is the location of the pus.

But how solve this problem? There are three ways: (1) The clinical symptomatology: I realize that localization in the cerebellum is far from being precisely worked out. However, the spontaneous deviation of the index finger seems to me to be in favor of localization anteriorly. On the contrary, a decided retropulsion is in favor of a localization posteriorly. The adiadokocinesis and hypermetry are observed in both localizations. (2) The lesions as observed during the operation: The general principle of otology, "The specialist must follow the course of morbid process," finds here a most useful application. This procedure usually allows one to find the pus in the most direct way, and, what is more important, it makes it possible to penetrate the meninges and subarachnoid space at the point where spontaneous walling off is already under way. (3) The needle puncture: When dura and sinus are exposed, the exploring needle introduced where the abscess is supposed to be, shows pus, its localization and its depth. Following these guides, I have rarely found the abscess behind the sinus, but most frequently in front of it. In one case, finding the sinus full of pus, I was led to the cerebellar abscess on the farther side of the sinus wall. Consequently, I believe we are frequently forced by the circumstances to choose the narrow space existing between the anterior part of the sinus and the posterior part of the petrous portion of the temporal bone, removing a portion of the latter, if necessary.

I should also like to say a few words concerning my method of walling off the subarachnoid spaces. This method is as follows: When the meninges are exposed and the pus location has been indicated by means of the needle, instead of cutting the membranes by a sharp instrument, I introduce at the site of the needle a grooved director, allowing the pus to partially evacuate by this means. In abscess of cerebrum this is important, but it is of even more importance in cerebellar abscess, because it is known that the pus under tension is not as well borne by the cerebellum as by the cerebrum. Then a small rubber drainage tube is introduced through the small meningeal opening. I have observed that the presence of this tube provokes the formation of fibrous adhesions, which wall off the subarachnoid space. Every day a larger tube is substituted until a diameter of from 9 to 11 mm. is reached. By this time a strong, firm ring of fibrous tissue surrounds the tube, which now functions as a drain. In cerebellar abscess, at this stage I replace the soft tube by a vulcanized one, which is specially prepared in my laboratory. The particular features of these tubes are that they are fenestrated and the anterior ends are cut obliquely. This obliquity prevents contact between the tube and anterior portion of the sinus, thus avoiding traumatism and grave hemorrhage. In subsequent dressings these tubes are diminished in length but not in caliber, as granulation tissue appears and pushes the tube outward. It is better to await spontaneous expulsion than to withdraw the tube. I have the detailed record of a case of cerebellar abscess following a concussion injury to the ear, in which there was complete recovery after having been treated in the manner just outlined. This case forms part of a paper dealing with the general subject "The Exclusion of the Subarachnoidal Space."

Dr. Ewing W. Day, Pittsburgh: I wish to make a plea for compulsory postmortems. Dr. Eagleton and the others who have studied his subject are hindered by the lack of

1. Eagleton, W. P.: Original Device for the Control of Hemorrhage from the Large Sinuses of the Brain by Invulsion of the Outer Wall into the Lumen, M. Rec. 95:274 (Feb. 15) 1919.

good postmortems and the published reports. I would like to urge every member of this society to go before the board of governors of your hospitals and have them enact a rule requiring postmortems in all cases in which death was due to trouble within the cranium. We have been diverted from this for some time on account of objections we thought might arise. In 1908 we had it introduced in the Pittsburgh Eye and Ear Hospital; it has therefore been in force for eleven years. We have had only three objections, and they did not amount to anything. They have patients sign an agreement before they go into the hospital, drawn up by competent legal authority, making it a contract, that in consideration of the treatment received in the ward, in case of death there shall be a postmortem. When we do that our knowledge of intracranial conditions will be greatly enlarged.

DR. EDWARD J. BERNSTEIN, Detroit: I would like to ask what relation Dr. Eagleton has found between the various diagnostic aids we have and the location of cerebellar abscess.

DR. JOSEPH C. BECK, Chicago: Of the fifteen cases of sinus thrombosis that I have had in twenty-five years only two patients have lived. In only one case have I made use of a point that Dr. Eagleton mentioned, the ventricular puncture, and that was after I saw the late Dr. Beckman of Rochester, Minn., in operating on a gasserian ganglion, use this method. I only bring this up because this is the one thing that is bothering us in the operation on the brain, the tremendous intracranial pressure.

DR. WELLS P. EAGLETON, Newark, N. J.: I think we should recognize that there is no one method of treatment that is adapted to all brain abscesses. I want to emphasize the importance of diagnosing between two separate and distinct conditions, both of which are classed as cerebellar abscess, viz., intrapia-arachnoid abscess situated within the pia-arachnoid; and intracerebellar abscess, situated within the cerebellar tisue. To obtain the best results, they must be treated differently. In intrapia-arachnoid abscess puncture and the insertion of a drain will not stop the suppurative process. The pressure of the brain against the dura prevents evacuation by drainage; the suppurative process continues to extend beyond the dural opening and the patient ultimately dies. All books on abscess of the brain speak of these cases as giving a high mortality, because, I think, of reliance entirely on drainage. Professor Lemaitre spoke of puncture; unquestionably it is the best treatment of acute intracerebellar abscess. We should differentiate between acute and chronic abscess. If we operate without complete preparation we will have a high mortality. A brain abscess requires the undivided attention of the surgeon from the time he makes a provisional diagnosis. I have seen four deaths, all possibly avoidable, because the surgeons had other engagements. The operations were put off for a day and during the delay the patients died. We should examine a case of suspected cerebellar abscess most carefully. If the patient is conscious he can be put in a chair and rotated over and over again. He may object, but if the family are told the importance of making the diagnosis, they will submit, and with the aid of assistants and a great deal of patience, all the tests may be applied. I have had more than one case in which the diagnosis between cerebellar and cerebral involvement was made by rotating in a Bárány chair. Dr. Beck spoke of ventricular puncture. Why it has not been more generally applied I do not know. It is of the greatest importance. If a large dural incision is followed by herniation, a ventricular puncture will reduce the herniation. I want to call attention to the fact that the direction of maximum pressure should be considered in selecting the site of the dural incision. Attention has never been called to it before; but theoretically there are points of maximum increased intracranial pressure, incision over which will be followed by herniation, and other points of minimum pressure where herniation is absent or slight. The obliteration of the lateral sinus and incision through it, although it is recorded but twice in literature, should be resorted to in every case of suspected cerebellar abscess, because of the advantages of anterior approach, the incision being in the line of minimum pressure.

Clinical Notes, Suggestions, and New Instruments

FORMULAS FOR USE IN STANDARDIZING AUTOGENOUS VACCINES

LEO R. TEHON, A.B., URBANA, ILL.
Sergeant, Medical Department, U. S. Army

In the preparation of autogenous vaccines, we used, as a routine, Wright's method of counting. In so doing I have experienced some little discomfort in handling the array of figures usually employed in making the necessary computations.

As a short cut, the formulas here given have proved useful and satisfactory, it being entirely unnecessary to compute the number of organisms per cubic centimeter in the suspension. The result obtained in working out the formulas gives the number of cubic centimeters of the suspension of organisms needed to make up a desired quantity of vaccine which will contain the desired number of organisms.

FORMULAS

Quantity of Vaccine	Millions of Organisms per C.c. 1,000	500	200
10 c.c.	$\frac{1.82 \times a}{b}$	$\frac{0.909 \times a}{b}$	$\frac{0.3636 \times a}{b}$
15 c.c.	$\frac{2.72 \times a}{b}$	$\frac{1.36 \times a}{b}$	$\frac{0.5454 \times a}{b}$
25 c.c.	$\frac{4.54 \times a}{b}$	$\frac{2.27 \times a}{b}$	$\frac{0.909 \times a}{b}$
50 c.c.	$\frac{9.09 \times a}{b}$	$\frac{4.54 \times a}{b}$	$\frac{1.818 \times a}{b}$
100 c.c.	$\frac{18.18 \times a}{b}$	$\frac{9.09 \times a}{b}$	$\frac{3.64 \times a}{b}$

In computing these formulas the number of red blood cells is arbitrarily taken to be 5.5 million per cubic millimeter; "a" is the average number of red blood cells obtained from the count, and "b" is the average number of organisms.

Suppose we wish to make up 15 c.c. of vaccine which shall contain 500 million organisms per cubic centimeter. The red blood cell count we will suppose to have been 50, and the bacterial count 75. We now substitute these numbers in the proper formula as given, and have:

$$\frac{1.36 \times 50}{75}$$

which is equal to 0.9.

This is the number of cubic centimeters of the suspension of organisms which, when made up to 15 c.c., will give a vaccine containing 500 million organisms per cubic centimeter.

When the exact content per cubic centimeter of red blood cells is known for the blood used in the comparison, the following formula may be used in any case:

$$\frac{\text{Total number of organisms needed}}{\frac{b}{a} \times \text{number of r. b. c. per c.c.}}$$

This gives the number of cubic centimeters of the suspension of organisms in making up a desired quantity of vaccine with a desired content of organisms.

NOTE.—Hosp. Sgt. B. H. Brown, professionally an instructor in mathematics, made, at the request of the author, the first formula used by the author in standardizing vaccines. The author extends thanks and credit.

Treatment of Mental Disorders.—It is descreditable to the intelligence and humanity of any community when no better provision for a delirious or frenzied sick person is made than the police station or lockup, and when no more skilled nor tender attention can be supplied than those of the constable and the poormaster.—W. L. Russell, *Canadian J. Mental Hygiene* **1**:162 (July) 1919.

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SATURDAY, OCTOBER 4, 1919

TSUTSUGAMUSHI DISEASE IN JAPAN

For many years, some of the river valleys of Japan have been known to harbor in endemic form a peculiar malady designated as tsutsugamushi disease. The old Chinese literature makes it probable that something of a similar nature was prevalent long ago in parts of China; and recently the same disease has been observed in Formosa. The descriptions indicate its close resemblance to typhus fever and allied infections. The origin of tsutsugamushi disease is attributed to the bites of certain insects found in the affected regions. As long ago as 1893, Kitasato ascribed the causation to a plasmodium-like organism which he believed he had discovered in the red corpuscles of afflicted persons. The theory of plasmodial causation has been opposed by various other Japanese investigators who were unable to find protozoa in the blood of their patients.

Of late, the study of the disease, which formed the subject of a report by the American investigators Ashburn and Craig[1] in the Philippine Islands in 1908, has been renewed by the experts of the Kitasato Institute for Infectious Diseases in Tokyo.[2] They have verified the peculiar periodicity of tsutsugamushi, which occurs most frequently in the summer months, beginning with June and ending with October. This corresponds with the development of the insect "akamushi," the now assumed carrier of the Nippon "river fever."[3] This insect appears to be the larva of a form resembling the European *Leptus autumnalis*. The summer likewise is the season when the peasants who suffer from it enter the infected zones. The insects, which begin to attack human beings in June, are extremely prevalent until the fall months. The mortality is a variable one, but has on several occasions exceeded 50 per cent.

The close resemblance of tsutsugamushi disease to typhus fever and Rocky Mountain spotted fever has been recognized for some time. There is a similarity in the type of febrile reaction elicited; the peculiar eruptions coincident with the height of the attack are also reminiscent of those seen in the better studied typhus-like infections. Indeed, one might be inclined to suspect a complete identity of the diseases except for the recent Japanese investigations, which assert a distinction between the "river fever" and the conventional typhus fever quite as marked as that still postulated between "spotted fever" and its nearest analogues. The nonidentity is asserted primarily on the basis of immunologic investigations and the failure of infection with one type to protect against the subsequent occurrence of the other.

The rôle of the field mouse (*Microtus montabelli*), as bearer of the parasitic insects that transmit the etiologic agent to man and as host of the infectious microorganism, seems to be established. With respect to prophylaxis, it is difficult to prevent the bites of the insects under existing conditions. Excision of the area of the sting does not prevent the distribution of the virus. The best prospect of relief seems to lie at present in the eradication of the mice so far as this is practicable. Precisely what the nature of the etiologic factor is, whether it belongs to the so-called ultramicroscopic agents or some comparable group, is still to be determined. It appears to be independent of the spirochetes that have lately been reported so often in Japanese rodents. Thus far, attempts at chemotherapy with preparations of iodin, mercury, arsenic, quinin or dyes have proved unavailing.

1. Ashburn, P. M., and Craig, C. F.: A Comparative Study of Tsutsugamushi Disease and Spotted Fever of Montana, Philippine J. Sc. **3**: (B), No. 1, 1908.
2. Kitashima, T., and Miyajima, M.: Studien über die Tsutsugamushikrankheit, Kitasato Arch. Exper. Med. **2**: 91 (July) 1918.
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INFLUENZA

The suffering and loss of life that characterized the influenza epidemic of last year are still vivid in the minds of physicians and the public, and there is much speculation as to the extent to which influenza will appear during this fall and the coming winter, and what measures are of value in its prevention. In the anxiety to do everything possible to lessen the anticipated danger, it is important to maintain a judicial attitude in evaluating any proposed method of prophylaxis, and to inquire carefully into its merits before recommending it for general public use. If we may judge by the experience of the past in other epidemics of influenza, or, indeed, in epidemics in general, a considerable incidence of influenza may be anticipated during the coming fall and winter. During the past spring and summer there have been scattering cases, for the most part mild, or at least not usually complicated by the fatal bronchopneumonia of last winter. While opinion as to the degree of immunity conferred by one attack of influenza is not unanimous, there are many facts that appear to support the view that one attack does confer immunity to the disease. If this view be accepted, it may be assumed that the epidemic

of last year, which affected perhaps 30 per cent. of the population, presumably conferred an immunity on a large proportion of the susceptible persons, and that therefore a recurrence of the epidemic of the same magnitude is very unlikely. On the other hand, no doubt there are a number of persons who escaped infection last year, but who through changes in resistance, or by accident of exposure, will suffer from the disease this year. It must not be forgotten that infections resembling and possibly identical with influenza, or la grippe, are with us practically always, especially in the winter, and there is a great temptation at such times to call any sickness that has not a definite entity "influenza." Conditions that are ordinarily called "colds" are now being given the more popular name "influenza."

The practical value of vaccines in the prevention of influenza has been much debated. In one group are those who are enthusiastic over the alleged success of vaccines in the prevention of influenza, citing numbers of instances in which persons did not become ill from influenza following prophylactic injections, and in which those who did become ill suffered less severely than others not injected. In another group are those more conservative, who present carefully studied series of persons who had been vaccinated, with like numbers of unvaccinated controls, and point out that the incidence of the disease was practically the same in the vaccinated as with the unvaccinated persons. The conclusion seems unavoidable that the efficacy of vaccines in the prevention of influenza is still unproved. The virus of influenza is not as yet discovered, and thus further doubt is thrown on the probable value of vaccines whose action, if any, would be nonspecific so far as influenza itself is concerned.

How, then, shall we answer the many queries of patients as to whether they shall be injected with vaccines or what they shall do to avoid falling victims to the disease? Certainly they should not at present be led to believe that by submitting to vaccination they can hope to acquire immunity in any degree comparable to that resulting from antityphoid inoculation. Until the value of prophylactic vaccines is clearly proved, they should not be recommended to patients as a sure method for the prevention of influenza. The question as to the value of vaccines in the prevention of infectious diseases of the respiratory tract other than influenza is still under investigation. Other procedures, such as good ventilation, cleanliness and hygienic measures in general, are of value in that they contribute to good personal and home hygiene. But no one of them is all important to the exclusion of the others. There is no scientific evidence that gargles and sprays, no matter what drug may be used, are of value, except as temporary cleansers. There is one point in regard to influenza, however, on which there is general agreement: The pulmonary complications of influenza, which make it so serious a disease, may be avoided to a large extent by rest in bed at the onset of the illness. Influenza itself is not usually fatal, and general insistence on the importance of rest and warmth at the onset of illness will accomplish more than all else in preventing complications and reducing fatalities from this disease.

THE LEGAL FOUNDATIONS OF PUBLIC HEALTH FUNCTIONS

Students of the history of American legal problems realize that, in harmony with the economic changes that have taken place during the past century, the interpretation of the constitutional limitations of the federal government is becoming correspondingly and progressively more liberal. Few persons interested in national welfare from the standpoint of public health are accustomed to ask themselves whence the necessary legal authority for the enforcement of hygienic measures is derived. Yet, as we are living under a constitution that permits the federal government to exercise only those powers clearly granted to it by that instrument, it is important to know the legal basis for permissible sanitary measures.

The constitution makes no direct mention of any power over the public health. In an address before a recent conference of state and provincial boards of health held at Atlantic City, President Goodnow[1] of Johns Hopkins University interpreted the sources whence the authority of the federal health organization may be assumed to be derived. The first great source upheld by numerous court decisions lies in the power of Congress to regulate commerce. The earlier limitations that kept this function strictly within the narrow construction of commerce with foreign nations and among the several states have been enormously extended with our national growth. The power of the national government, says Dr. Goodnow, to regulate commerce may be exercised not merely with the idea of promoting commerce from an economic point of view but also with the idea of limiting commerce in order to protect the public health or safety. It includes, therefore, the power to establish quarantines and to deny the right of entry into the country or of transportation from one state to another of objects or persons when that entry or that transportation may, in the opinion of the competent authorities of the national government, endanger the public safety.

The federal health authority is also held by Goodnow to be a function of the power to lay taxes and duties and thus provide for the common defense and general welfare of the United States. Congress may thus prevent the production and distribution of harmful substances by imposing prohibitive taxes. This is

1. Goodnow, F. J.: Constitutional Foundations of Public Health, Am. J. Pub. Health, 9: 561 (Aug.) 1919.

an instance of a repressive application of the power of taxation. The same privilege may be employed to promote directly the public welfare by appropriating funds designed for the establishment and activity of public health agencies.

Fortunately the federal government has rarely come into clash with the individual states in the conduct of their sanitary routine and the prosecution of their hygienic projects. The Pure Food and Drugs Act of 1906, the Child Labor Act, and the Harrison Act relating to the sale of narcotic drugs have all passed the scrutiny of the courts and found justification and legal sanction in our vaguely specific federal constitution. It is well, however, to remember the limitations of the latter and to realize that any great extension of the national health movements can be based on fundamental legal sanction only so long as the interpretation of our constitution is sufficiently liberal to meet present day needs. "Epidemics," says President Goodnow, "are not respecters of state or even national lines. A keener realization of this fact will unquestionably have the effect of causing a broader interpretation of existing powers, and may well result in constitutional amendment where such broad interpretation is not possible."

SOME PROPERTIES OF THE FAT-SOLUBLE VITAMIN (FAT-SOLUBLE A)

The day has passed when even the most skeptical critic of novel hypotheses can deny that certain natural fats, notably milk fat, egg-yolk fat and various tissue oils, exhibit a peculiar potency in nutrition that is not shared by many other wholesome fats which enter into the dietary. Whether the property referred to be designated as a vitamin, a food accessory substance, a food hormone or auximone is of secondary interest so long as its chemical nature and mode of action are still so obscure. The fundamental fact has been firmly established: When a suitable source of the fat-soluble vitamin as it exists either in animal fats or in green plants is lacking in the diet, nutritive disaster is certain to follow sooner or later, even when all other components of the ration are ideally adequate. We are here dealing with some as yet unidentified food factor indispensable for nutritive well-being, even though the quantity that is required may be measured with small units.

The earlier studies of the fat-soluble vitamin were largely directed to the search for its sources, so that it is now possible to catalogue a considerable list of foods of known potency with respect to the factor under discussion. The practical significance of this will be clearer to the medical practitioner when the bearing of a deficiency of the fat-soluble vitamin on the genesis of certain symptoms of malnutrition is further elucidated. A shortage of the vitamin in the human dietary has already been convincingly related to the appearance of eye disease (xerophthalmia) in children; and English investigators are inclined to ascribe rickets to a similar deficiency factor. During the enforced food shortage of war-time days, the lack of butter, eggs and meats caused considerable concern to the food authorities. We have already pointed out that butter substitutes which are made from beef fats or oleo oils may be physiologically comparable to some extent with butter in their growth-promoting power, whereas those prepared from vegetable oils are inadequate in this respect.[1]

As might be expected, these pioneer studies of distribution are being followed by investigations of the properties of the unique something known as fat-soluble vitamin. It has not been identified with any of the recognized components of fats, such as glycerol, fatty acids, cholesterol, phosphatids or lipochromes. Several investigators, of whom the latest is Drummond[2] of the Cancer Hospital in London, have called attention to the ready destruction of the fat-soluble accessory food factor (A) after relatively short exposure to a temperature of 100 C. (212 F.). Longer exposure at lower temperatures, for example, 37 C. (98.6 F.) may be equally detrimental. This destruction is apparently not a result of oxidation or hydrolysis. The facts just cited render it impossible at the present state of knowledge to "harden" liquid oils, as is now so commonly done in the industries, without effecting a loss of the fat-soluble vitamin which the original fats may contain. This explains, further, why it is that the popular commercial hardened oils are devoid of the vitamin, whatever their origin may have been.

The specific rôle of the fat-soluble vitamin within the organism still remains unknown. The fact that it is found in certain fat depots of the body has suggested that it may play a part in the utilization of fats. Recent observations by Drummond[3] indicate that this is not the case, however. A deficiency of fat-soluble A in the diet does not exert any direct influence on the absorption of fat; and animals are able to absorb large amounts of fatty acids and presumably synthesize these into fats, in the absence of the fat-soluble vitamin.[4] Drummond[2] ventures to suggest that the latter is not a clearly defined chemical substance but rather a "labile substance perhaps possessing characteristics resembling those of an enzyme." We shall await further investigations without the bias of a fixed hypothesis.

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2. Drummond, J. C.: Researches on the Fat-Soluble Accessory Substance, I, Observations on Its Nature and Properties, Biochem. J. **13**: 8 (May) 1919.

3. Drummond, J. C.: Researches on the Fat-Soluble Accessory Substance, II, Observations on Its Rôle in Nutrition and Influence on Fat Metabolism, Biochem. J. **13**: 95 (May) 1919.

4. Fatty Acids as Foods, editorial, J. A. M. A. **73**: 608 (Aug. 23) 1919.

Current Comment

ALABAMA ADOPTS THE MODEL LAW FOR VITAL STATISTICS

Alabama has adopted the model law for the registration of births and deaths, making forty-one states that have adopted this measure. Of the remaining seven states, New Mexico, in its recently adopted law, authorized the state board of health to enact regulations on this subject. Arizona, Nevada and Iowa still adhere to the obsolete method of collecting vital statistics through county clerks. In South Dakota, the secretary of the state historical society is the registrar of vital statistics. In West Virginia, the model bill has been twice introduced but has so far failed of passage. Delaware, although one of the oldest of the states, is still outside the registration area. However, the progress made in the country as a whole, since 1906, when only nine states had any adequate birth and death registration, is both remarkable and gratifying. The passage of the model law in Alabama completes the reformation in the South on this subject. Of the six states still without satisfactory laws, two (Arizona and Nevada) are Western, two (Iowa and South Dakota) are Central and two (West Virginia and Delaware) are Eastern. The passage of the model law by these states should be effected at the earliest possible moment in order that the registration area for births and deaths may be made coterminous with our national boundaries and that the energy that has been devoted to securing the passage of this law in the last fifteen years may be expended in other and greatly needed directions.

THE CAMPAIGN TO PREVENT INFANT MORTALITY

During the first, second and third quarters of 1918, that year bade fair to prove a record one in the attempt to reduce infant mortality. Local agencies everywhere, under the inspiration of the movement initiated by the Children's Bureau, made every effort to save infant life. Large gains were being made but, unfortunately, the epidemic of influenza made its appearance in the last quarter of the year and upset the good record. The figures for Chicago and New York City well illustrate what happened. In the latter city the infant mortality rate of 1917 was 91.4 per thousand births. In 1918, the rate increased to 93.1. This is still a good rate; but what it might have been will be evident from the following comparison: In the first nine months of 1918, the infant mortality rate was only 86.6 per thousand births; the corresponding rate for 1917 was 94.6. Then came the epidemic and, in the remaining three months, the infant mortality rate went up to 115.2 per thousand births, as against 81.7 in the previous year. It was the respiratory diseases and influenza, chiefly, that were responsible; for the rate from these diseases was nearly twice that for the previous year (more than one third of all infant deaths in October, November and December, 1918, were from bronchitis, pneumonia or influenza). The rate for the congenital causes also increased, being 43 per cent. higher in the last quarter of 1918 than in 1917. It is possible that this increase was connected with the sinister effects of influenza on pregnant women. Many physicians have noted an increase in the number of premature births during the period of the influenza epidemic, and it is very likely that this was an important factor in the larger number of deaths from congenital causes. The figures for Chicago show a similar situation. The total infant mortality rate decreased somewhat (from 105.9 in 1917 to 104.1 in 1918). But this decrease was entirely due to the record made in the first nine months of 1918. The rate for this period was 95.5 per thousand births, as against 112.6 in the previous year. In the last three months, the infant mortality rate went up to 133.2. Again, we find that the respiratory diseases and influenza were chiefly responsible. The rate was about three and one half times as high as in the last quarter of the previous year. The congenital causes were higher by 21.5 per cent. than in the last three months of the previous year. In Chicago, as in New York, the rate from diarrheal diseases was higher in the last quarter of 1918, although the rate had decreased somewhat in Chicago, and considerably in New York during the first nine months of the year. It is suggested that health officers of other populous centers analyze their infant mortality rate for 1918 along lines similar to the foregoing to determine what effect the influenza epidemic had on their campaign for the reduction of infant mortality.

THE APPLICATION OF HEAT TO THE ABDOMEN

An old standby among our therapeutic measures is the application of heat to the abdomen. No matter what the pain or discomfort, we are likely to turn to the poultice, the compress, the hot water bottle or the electric pad. The general belief seems to be that the heat will relax spasm, aid digestion, and exert a beneficial influence generally. Can we prove experimentally the correctness of this belief, and if so, can we show how the effects are brought about? Unfortunately, the literature on the subject, though extensive, fails to afford much enlightenment. One thing seems certain, and that is that the effects are not due to an actual penetration of heat to the abdominal organs. Lüdin,[1] using an electropile on the stomach, found that the hottest poultice that the patient could bear, changed frequently during the course of three hours, raised the intragastric temperature at most 1 C. He fails to state whether the person experimented on was fat or thin. Stengel and Hopkins,[2] using a similar method, found practically no rise in temperature with hot water bottles left on for forty-five minutes. They were able to lower the temperature about 1 C. with ice-bags. Carlson,[3] Boring and others have reversed the process, putting ice-water into the stomach and watching the temperature of the overlying skin. They found practically no change. Others have made similar studies with fistulas, with enemas, etc., and have found, as might be expected, that local differences in temperature

1. Lüdin: Ztschr. f. d. ges. exper. Med. **8**: 68, 1919.
2. Stengel and Hopkins: Am. J. M. Sc. **153**: 101, 1917.
3. Carlson: The Control of Hunger in Health and Disease, University of Chicago Press, 1916, p. 110.

are promptly evened up by the circulating blood. But even if the heat should penetrate to the intestine, it is far from clear how it would act there. Those who have studied the effects of heat and cold applied more directly to the bowel are not in agreement as to the results. We often apply ice to the abdominal wall in the hope of stopping gastro-intestinal movements, quieting inflammation, restraining hemorrhage, etc., yet there is little in the extensive reports of laboratory workers to encourage us in this usage, or to help us in deciding when to use cold and when to use heat. Most of the laboratory experiments indicate that cold stimulates peristalsis. Kelling,[4] however, found that even when he put ice-water into the stomach he could not increase the tone of that organ enough to influence any bleeding that might be present. Apparently we must continue to be disappointed occasionally in our efforts to affect peristalsis by these measures. When we do seem to get results it may be that they are brought about by way of the nervous mechanism connecting the skin and the internal organs. We must, however, be careful how we take refuge in realms in which theory is easy and exact demonstration is difficult.

THE CHEMICAL EXPOSITION

During the last week in September occurred in Chicago what was probably the largest exhibition of technical chemistry ever assembled. To the physician intent on medical chemistry and materia medica the exhibit was a revelation. In some exhibits were long rows of by-products of oil, coal and metal trades—with strange chemical names—whose actions and uses one could hardly guess. Instead of delicate glass and porcelain apparatus, by far the largest part of the space was occupied by monster steel evaporating tanks, huge crucibles, room high suction devices, and two ton vats. And finally one came to the dye section—row on row of colors—fascinating shades exhausting all the combinations of the spectrum—dyes for cloth, for wood, for leather, for food, for every purpose imaginable. Hundreds of pamphlets told how the infant American dye industry—and the interdependent pharmaceutical trade—stimulated by the war, had already leaped to fill the gap left by the cutting off of German products. And here as a delicate reminder that the dye industry was not Germany's in the first place, one could see in a glass case a silver receptacle containing a piece of pretty mauve colored silk—a part of the goods dyed by William Perkin, of England, in 1857 with the first coal tar dye ever prepared for commercial purposes.

4. Kelling: Ztschr. f. Biol. **44**: 245, 1903.

Cancer Research.—At the recent meeting of the general committee of the Imperial Cancer Research Fund, Sir William Church stated that the effect of war conditions on the cancer mortality figures for the whole country was first apparent in the national statistics for the year 1915. In that year there was apparently a great and sudden increase in the cancer death rate in males. The rate for females was unaffected, and when the necessary correction was made to allow for the withdrawal of large numbers of young males for military service the apparent rise in the death rate disappeared.—*The Medical Officer*, Aug. 30, 1919.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Nathaniel A. Barrett, president of the city commission of Birmingham, is convalescent after a long illness.

Typhoid in Alabama.—During the week ended August 30, forty-four cases of typhoid fever were reported to the state health department.

New Hospital.—The Elizabeth Coffee Memorial Hospital, Florence, was formally opened, August 13. The institution can care for thirty-two patients and Dr. Luther T. Young, Atlanta, will be in charge of the clinic of the institution.

Alabama to Care for Feebleminded.—The house of representatives passed by a unanimous vote, Sept. 19, 1919, the Alabama Mental Deficiency Bill. This bill passed the senate, September 13. The provision is made by an appropriation of $200,000, for the establishment of the Alabama Home for Mental Inferiors at Tuscaloosa in connection with the Bryce Hospital. A potent factor in securing this appropriation at this time in Alabama was the mental survey of the industrial schools of the state which was made in May, 1919, by Dr. William D. Partlow, Tuscaloosa, superintendent of the Alabama insane hospitals, and Dr. Thomas H. Haines, field agent of the National Committee for Mental Hygiene. This survey was a joint undertaking of the Alabama State Board of Health and the National Committee for Mental Hygiene. The survey was undertaken at the request of the Alabama Board of Economy and Control. It resulted in showing that 129 of the 654 juvenile delinquents in the four schools in Alabama are of such low mentality that they must have institution management in order to be managed for their safety and to the comfort of the community.

GEORGIA

Typhoid Fever.—During the first week in September, ninety-two cases of typhoid fever were reported in the state.

Citizens to Build Hospital.—The citizens of Athens propose to build a new hospital, to be known as the Athens General Hospital, to cost from $250,000 to $300,000, and to occupy a choice 10-acre site.

Funds for Grady Hospital.—An extensive campaign was carried on in Atlanta, from September 10 to 30, in an endeavor to secure $150,000 for Grady Hospital, to be used for the completion of the nurses' home and installation of the sanitary diet kitchen.

Increased Appropriation for Medical School.—A report states that the Georgia legislature, at its recent session, increased the appropriation for the medical department of the University of Georgia from $30,000 to $55,000. This includes $20,000 for courses in public health and hygiene.

Pass Bill for Training of Public Health Specialists.—The senate has incorporated in the general appropriations bill an item of $20,000 to provide for the training of public health experts. This training will be carried on at the Medical College of Georgia, Augusta, as a new department of the institution.

Memorial Wing for County Hospital.—The campaign to raise $25,000 for the erection of a soldiers' memorial wing to the Thomas County Hospital, Thomasville, was opened, September 19, and continued until September 30. At present the institution can accommodate only twelve white and eight colored persons at any one time.

ILLINOIS

Progress of Hospital Campaign.—The campaign to aid St. Joseph's Hospital, Bloomington, has thus far resulted in the subscription of more than $20,000 to the hospital fund.

State Conference of Charities.—The Illinois State Conference of Charities and Corrections will be held in Decatur, October 24 to 26, with headquarters at the Orlando Hotel.

Increase in Influenza.—The official health record for Chicago, for the week ended September 27, shows a slight

increase in the number of cases of influenza. During the week fifty-seven cases were reported with two deaths.

Service Men Welcomed.—Will County Medical Society gave a banquet at the Woodruff Inn, Joliet, to Drs. William R. Fletcher and John W. Krohn, who have recently returned from service. Of the members of the society, eleven were in service during the war; one, Dr. William E. Harwood, Joliet, died in service, and two members are still in France.

Illegal Practitioners Fined.—Eva Karasek of North Chicago was arrested by the Department of Registration and Education of the State of Illinois for practicing medicine without a license and was fined $100 and costs.——Dr. William A. Lucas of Chicago is reported to have been arrested, on complaint of the Department of Registration and Education of the State of Illinois, and fined $25 for practicing medicine without a license.

Personal.—Dr. Harry A. Sullivan, Rockford, is reported to be critically ill with pneumonia.——Dr. Alice Barlow Brown, Winnetka, who has just returned after three years' service in the devastated regions in France, was given a reception by the Winnetka Women's Club, October 2.——Dr. George W. Prince, Chicago, was shot in a struggle with a burglar in a house to which the doctor had been lured in response to a professional call, September 18.

Sanatorium Notes.—The protest of people interested in property on the southern outskirts of Champaign over the plan of Champaign County to erect a tuberculosis sanatorium on that locality at a cost of $75,000 resulted, September 17, in the securing of an option at $666 an acre on a tract of 16 acres north of Urbana.——Since August, 1918, thirty-six persons have reported to the tuberculosis dispensary of Champaign for examination, and thirty-two of these have returned repeatedly for treatment.——Christian County has ordered a levy of $60,000 for a tuberculosis fund for the county.

New Hospital Group.—Work is expected to commence within sixty days on the new group of hospital buildings to be erected by the state for the University of Illinois, on the site of the old Cubs ball park, Chicago. This group will cost about $5,000,000 and shall be completed in about three years. The group includes the Illinois Charitable Eye and Ear Infirmary, the State Psychopathic Hospital, the State Surgical Institute for Children and a clinical hospital. By a joint arrangement the state department of public welfare will operate the group as to the administrative features, and the University of Illinois, College of Medicine, will undertake the medical work.

Training School to Be Continued.—The Chicago Training School for Home and Public Health Nursing closed its first eight weeks' term, September 30, with nearly 800 students in attendance. The interest in the school has been so great that it has been decided to conduct another eight weeks' term, beginning October 6. The course of instruction includes: bed making—medical, surgical, maternity, and fracture bed; cleansing baths; baths for reduction of temperature; hot and cold packs; maternity nursing—the care of the mother and infant; first aid, medical and surgical; poultices and stupes, and the care of the contagious disease patients. The courses are given at 1358 West Fulton Street, Chicago.

INDIANA

Illegal Practitioner Fined.—It is reported that Kate A. Braun, alias Mary A. Rose, of Peru, was indicted by the grand jury recently and fined $150 for practicing medicine without a license. This action was taken through the Indiana State Board of Medical Registration and Examination.

Personal.—Dr. Maurice C. McKain, Brownstown, has been appointed physician of Union County to fill the unexpired term of Dr. Fred Heller, deceased.——Dr. John N. Hurty, Indianapolis, secretary of the state board of health, who has been convalescent following a surgical operation, was so far recovered as to be able to visit his office at the State House, September 5.

Cars Burned.—The following is a list of physicians who lost their cars when the Horace Wood Garage, Indianapolis, burned, September 25: Carl H. McCaskey, William F. Clevenger, William S. Tomlin, Thomas B. Noble, Albert C. Kimberlin, Joseph W. Wright, Thomas B. V. Keene, and John H. Eberwein. As a city ordinance makes it unlawful to park automobiles in down town streets for over an hour and a half at a time, this garage, being down town, was used by physicians for day storage only.

Emergency Corps of Physicians.—Dr. William F. King, Indianapolis, acting secretary of the board of health, announces that an emergency force of 100 physicians is to be organized in Indiana to be used in fighting the recurrence of the influenza epidemic under the direction of the United States Public Health Service and the state board of health. The members of this force will receive a salary of $200 a month and a per diem of $4, and the necessary transportation.

State Association Meeting.—The Indiana State Medical Association met at the Claypool Hotel, Indianapolis, September 24 to 26. There were more than 700 in attendance and the following officers were elected: president, Dr. Charles H. McCully, Logansport; vice presidents, Drs. Budd Van Sweringen, Fort Wayne; Samuel Hollis, Hartford City, and Charles Stoltz, South Bend; secretary-treasurer, Dr. Charles M. Combs, Terre Haute (reelected); delegates to the American Medical Association, Drs. George W. Spohn, Elkhart, and Albert E. Bulson, Fort Wayne, and alternates, Drs. Charles D. Humes, Indianapolis, and Burton D. Myers, Bloomington. The next place of meeting will be South Bend, September 23 to 25, 1920.

MARYLAND

Memorial Hospital Given.—Mrs. Caroline Pitt McCready, widow of Edward W. McCready, who was killed in a grade crossing accident near Crisfield, will give a hospital to Crisfield in memory of her husband.

Typhoid.—Hagerstown is facing an epidemic of typhoid fever. More than a dozen new cases have been discovered in the northern suburbs of the city and a survey by the county health officer has led to the conclusion that the outbreak is due to an infected milk supply.

City Hospital Planned.—A recommendation from Health Commissioner John D. Blake that Baltimore purchase the Northwestern General Hospital, for use in case of epidemics of influenza or minor infectious diseases, has been taken under consideration by the board of estimates. The buildings and grounds together with equipment can be bought for $50,000, and the hospital can be opened for any emergency on a day's notice. The two buildings contain provision for seventy-five beds and there is, in addition, a nurses' home, with twenty beds; a surgical ward, and two dispensaries.

Discuss Recurrence of Influenza.—Plans for providing adequate assistance for the people of Baltimore in the event of a recurrence of an influenza epidemic were discussed at a meeting, held September 23, at the Medical and Chirurgical Faculty Building, Baltimore, by a number of physicians called together by Dr. John M. T. Finney and Dr. Arthur M. Shipley, the newly elected medical advisers to the emergency committee of the Baltimore Chapter, American Red Cross. A tentative program was outlined preliminary to the work to be done by physicians and Red Cross workers in mapping out complete arrangements which would enable them, should the emergency arise, to provide medical assistance, nurses, bed linen, nourishment and clothing for the sick. Home nursing courses have already been organized by the emergency committee of the local Red Cross and more than 200 students are in training for a period of seven and a half weeks, in which time fifteen home nursing lessons are given by competent teachers.

Personal.—Dr. John M. T. Finney has accepted the post of campaign chairman in the $750,000 drive by the Union Protestant Infirmary, for the erection of its new hospital at Guilford, Baltimore. The campaign will commence, October 20, and close, October 27.——George Walker, Col., M. C., U. S. Army, who went overseas with the Johns Hopkins Base Hospital Unit, but was detached and placed in general charge of the principal ports of debarkation to fight social diseases, has returned to his home in Baltimore on leave.——William Michel, Capt., M. C., U. S. Army, Frostburg, has returned from France after two years' service overseas, and has resumed practice in Baltimore.——Dr. Edward N. Brush, for nearly thirty years superintendent of the Sheppard and Enoch Pratt Hospital, Towson, has offered his resignation to the board of trustees, and hopes to be relieved of his responsibility as superintendent, about January 1. Dr. Brush will remain in close touch with the hospital, but will devote most of his time to his duties as managing editor of the *American Journal of Insanity* and to his many other medical interests.——Dr. Harry Friedenwald, Baltimore, has been elected vice president of the Zionists of America.——Drs. William S. Thayer and Hugh H. Young, Baltimore, have returned after a two months' trip abroad.

NEW YORK

Personal.—Dr. Homer E. Smith, Norwich, has been appointed assistant surgeon to the Knapp Memorial Hospital, New York City, and has moved to New York City.——Dr. Clinton P. McCord, health director of the Albany School for seven years, has been appointed head of the newly created bureau of health of Pennsylvania.——Dr. William Hale, Jr., who has been on duty with the Canadian Battalion of the Black Watch, has returned to Utica, after more than two years' service abroad.

New York City

Children's Home for Bronx County.—The Bronx County Society for the Prevention of Cruelty to Children has tentative plans for the erection of a building to be used as a children's home, which will cost $100,000. Already many large subscriptions have been pledged.

Maternity Centers Opened.—The Maternity Center Association has, during the past year, opened three new maternity centers in Harlem and Yorkville. An educational campaign is being carried on in these neighborhoods to show the advantages of advice and help to mothers.

College of Physicians and Surgeons Opens.—The opening exercises of the College of Physicians and Surgeons were held at Columbia University, September 24. Dr. William Darrach, the newly appointed dean of the college, delivered the opening address, his subject being "Productive Medicine."

Academy of Medicine Opens Season.—The opening meeting of the New York Academy of Medicine for the season 1919-1920, held on October 2, was the occasion of the Carpenter Lecture. This was delivered by Sir Arthur Newsholme, late principal medical officer of the Local Government Board of England; lecturer on public health, Johns Hopkins School of Hygiene. His subject was "The Increasing Socialization of Medicine."

Personal.—Dr. John William Perilli has been appointed a member of the board of trustees of Bellevue and Allied Hospitals, for a full term of seven years. The board consists of six laymen and a president who is a medical man, and Dr. Perilli is the first medical man to be appointed on the board in addition to the president.——The king of Denmark has conferred the Order of Danneborg on Dr. Ejnar Hansen, who served through the world war as a captain and major in the Medical Corps of the United States Army.

Visiting Women Physicians Entertained.—The foreign delegates to the International Conference of Women Physicians, now in session in this city, have been invited by Mrs. Raymond Robins, president of the National Women's Trade Union League, to meet the member of the Trade Union League at a tea, on the afternoon of October 3. The conference took a recess from September 26 to October 1, during which the foreign delegates took a trip to Boston, where they visited Harvard, Radcliffe and Wellesley colleges and were entertained at a tea by Dr. Sarah Sweet Windsor, Boston, at her country home.

NORTH CAROLINA

Personal.—Dr. Cyrus Thompson, Jacksonville, has been nominated as a member of the North Carolina Reconstruction Commission whose intention it is to examine the economics and military needs of the state and report with recommendations at the next session of the legislature.——Dr. Louis J. Picot, Littleton, was elected president of the Seaboard Railway Surgeons' Association at its recent annual meeting in Jacksonville.——Dr. Sidney E. Buchanan, Concord, has been elected full-time health officer for Cabarrus County.

OHIO

Seek Fund for Training School.—A committee of the board of trustees of the University of Cincinnati has been appointed to confer with the citizens of Cincinnati relative to the raising of a fund of $100,000 to be utilized in carrying on the work of the school to train physicians in the study of industrial relations between employer and employee and in sanitation and fundamentals of safety and the care for the general welfare of the worker.

Personal.—Dr. Louis F. Bucher, who has served for several years as medical inspector in the city schools of Dayton, has been appointed supervisor and teacher of hygiene under the board of education and will be assisted by Drs. Warren C. Breidenbach, Dayton, and Frederick J. Driscoll, Ashtabula.——Dr. Frank G. Boudreau, Columbus, after service of nearly two years with the British Forces in France and Belgium, has resumed his duties as head of the department of communicable diseases of the state board of health.——Dr. Edward J. Schwartz, Salem, has been made supervisor of the Northeastern Ohio District of the state department of health.——Dr. Ralph W. Holmes, Chillicothe, has been elected president of the Tenth District Medical Association.——Dr. Georges Rasetti, Cincinnati, who returned to France five years ago on the occasion of the first call to arms, and served throughout the war, has decided to remain in France.

PENNSYLVANIA

State Medical Meeting.—The sixty-ninth annual session of the Medical Society of the State of Pennsylvania was held at Harrisburg, September 22 to 25. At the annual business meeting the following members were elected: Dr. Henry D. Jump, Philadelphia, president-elect; vice presidents, Drs. J. Wesley Ellenberger, Harrisburg, Spencer M. Free, Dubois, Charles B. Wood, Monongahela, and Anthony F. Myers, Blooming Glen; secretary, Dr. Walter F. Donaldson, Pittsburgh; assistant secretary, Dr. Christian B. Longenecker, Philadelphia; treasurer, Dr. John L. Lowman, Johnstown; trustees, Drs. Frank C. Hammond, Philadelphia; Howard C. Frontz, Huntingdon; Theodore B. Appel, Lancaster; Donald Guthrie, Sayre; Irwin J. Moyer, Pittsburgh; G. Frank Bell, Williamsport; Harry W. Mitchell, Warren; R. G. Shumaker, Reading; Harry W. Alberson, Scranton, and Jay B. F. Wyant, Kittanning; delegates to the American Medical Association, Drs. William F. Bacon, York; George R. S. Corson, Pottsville; Herbert B. Gibby, Wilkes-Barre; Wilmer Krusen, Philadelphia, and George G. Harman, Huntingdon. Pittsburgh was chosen as the next place of meeting.

Philadelphia

Occupational Therapy Needs Women Aides.—A call for fifty women to train immediately as aides in occupational therapy was issued, September 22, by the state supervisor of occupational therapy.

Maternity Section for Bryn Mawr Hospital.—A drive to raise funds to build, equip and maintain a maternity section in the Bryn Mawr Hospital will begin, October 8, and last until October 18. The receipts from the Bryn Mawr horse show will go to this fund.

University Hospital Needs Funds.—The board of managers of the Hospital of the University of Pennsylvania has decided to ask the public for $1,000,000, and a drive for this amount will be made during the week of October 6. Headquarters have been established at the Bellevue-Stratford and there will be 360 workers, divided into sixty teams, thirty of women and thirty of men.

Personal.—Dr. J. Harold Austin of the medical department of the University of Pennsylvania goes to the Rockefeller Institute, New York.——Dr. William H. F. Addison has been made a full professor of histology and embryology; Dr. Oscar H. Plant has been promoted to a full professorship in pharmacology; Dr. Byron M. Hendricks and Raymond Stehle have been promoted to assistant professorships of physiologic chemistry, medical department, the University of Pennsylvania.

University Graduate School.—Graduate classes in medicine, the first ever organized at the University of Pennsylvania, will open, October 6, with headquarters at the Polyclinic Hospital. This is the direct outgrowth of the merger of the University Medical School with the Medico-Chirurgical College in 1916 and with the Polyclinic in 1918. Dr. G. H. Meeker is dean of the new school. The faculty of 150, many of whom formerly were on the teaching staff of the Medico-Chirurgical College, will conduct the classes. The admission requirements prescribe graduates in medicine who have practiced.

CANADA

Medical Inspection of Schools in Montreal.——The school commissioners of Montreal desire that the medical inspectors should be under the direction of the commission, but at the same time officers of the department of health.

Personal.—Col. Robert A. Bowie, Brockville, Ont., is still overseas. Recently he has been appointed consultant in surgery to the Canadian Headquarters in London, England. He was for a time second in command of the Ontario Military Hospital, Orpington, Kent, England.——Brig.-Gen. Arthur E. Ross, Kingston, Ont., has been sworn in as a member portfolio of the Ontario government. It is understood that when

a department of health is created in that province he will be the minister in charge.

University News.—The Western University, London, Ont., has been given the library of Dr. J. Davis Barnett, Stratford, Ont., a library which is especially rich in Shakespeare.——Dalhousie University, Halifax, N. S., has decided on a campaign for an increased endowment.——President Klinok of the University of British Columbia has just returned to Victoria after an extended trip East. He states that the universities are stripped of men in science and economics and he experienced extreme difficulty in getting instructors in these branches. The university this session will be greatly crowded, the total attendance running about 800, of whom 400 are freshmen.——Prof. W. S. Lindsay, from No. 13 Mobile Laboratory in France and Greenwich Hospital, has been appointed to the chair of bacteriology and pathology in the University of Saskatchewan.——Dr. John G. Fitzgerald, an associate professor in the department of hygiene in the University of Toronto, has been advanced to full professorship, taking the place vacated by Dr. John A. Amyot. Dr. Fitzgerald is also head of the Connaught Laboratories and the two offices will now be combined.——Dr. Horst Oertel has been appointed professor of pathology in McGill University, Montreal, succeeding Prof. J. George Adami,

GENERAL

Bids for Naval Hospital.—Secretary of the Navy Daniels, while in Honolulu, in August, cabled the Bureau Yards and Docks to entertain bids for the construction of a large naval hospital at Pearl Harbor, Hawaii, at a cost of about $300,000.

Southwestern Medical Association to Meet.—The annual meeting of the Medical Association of the Southwest will be held in Oklahoma City, October 6 to 8. The association includes the physicians of Oklahoma, Mississippi, Kansas, Arkansas and Texas.

Child Hygiene Association Meeting.—The annual meeting of the American Child Hygiene Association, formerly known as the American Association for the Study and Prevention of Infant Mortality, will be held at Asheville, N. C., November 11 to 13, under the presidency of Dr. S. Josephine Baker, New York.

Millions for Medical Education.—The newspapers report that John D. Rockefeller has given to the General Education Board, founded by him in 1902, $20,000,000 to be used in improving medical education in the United States. The announcement states that the income and the entire principal is to be distributed within fifty years and that a preliminary survey of the medical schools will be made to determine which are worthy of being improved.

Interallied Conference on War Disablement.—The third interallied conference for the study of problems relating to war cripples will be held in Rome, Italy, October 12 to 17. An effort will be made at this conference to arrange for a cooperation between the various allied countries in caring for disabled soldiers so that if a wounded soldier of one nation be located in another of these countries, he would find available medical care and facilities for reeducation, etc., of which he may be in need. The Medical Department of the United States Army will be represented at this conference by Col. Nathaniel Allison and Col. Harry E. Mock. The Medical Department of the United States Navy has not announced an official representative. The United States Public Health Service will be represented by Surg. Carl Ramus.

Bequests and Donations.—The following bequests and donations have recently been announced:

Woman's Hospital, Children's Hospital, Christ Home for Children, each $20,000, and the Pennsylvania Institute for the Deaf and Dumb, Mount Airy, $140,000, in the event of the death of his daughter without further issue by the will of George Gilpin, Philadelphia.

Deaconess and Hospital Society of the Atlantic Conference of the Evangelical Association, $500, by the will of Hannah Littinger.

Kingston, Ont., General Hospital, $100,000 for the treatment of tuberculous patients, by the will of the late Senator H. W. Richardson.

American Red Cross $2,281.65, by the will of Oscar Hanschik, Clay County, Neb.

The library of the Georgia Medical Society, Savannah, $1,000 for the endowment fund, by the will of Dr. J. Ewing Mears, who several years ago gave the society the William Mears Medical Library Foundation, collection of works on surgery.

For increasing public bathing facilities in Indianapolis, $5,000; Indianapolis Orphan Asylum and Home for Aged and Friendless Women, Indianapolis, each $3,000; The Deaconess Home of the Indiana Conference of the Methodist Episcopal Church, $2,500, by the will of Dr. John T. Burford.

FOREIGN

Foundation of Institute for Biochemistry at Milan.—A legacy of $60,000 was bequeathed by the late Dr. Rizzi, physician in chief of the Ospedale Maggiore at Milan, to found an institute for the research and practice of biochemistry.

Fiftieth Professional Anniversary of Professor Romiti.—The University of Pisa recently organized a festal meeting to honor the fiftieth professional anniversary of Prof. G. Romiti of the chair of anatomy. A marble portrait bust was unveiled, and Romiti presented the university with his magnificent library on anatomy.

Americans Equip Greek Orphanage.—The Red Cross Bulletin (**3**:3 [Sept. 22], 1919) announces that a national orphanage home for hundreds of little Greek children has been dedicated by King Alexander and General Adossides of Macedonia. In the vestibule of the building has been erected a tablet commemorating the American Red Cross workers who equipped the institution and organized the work.

Deaths in the Profession Abroad.—Dr. **Filiberto Mariani**, professor of clinical medicine at the University of Genoa and author of important works on various phases of internal medicine and therapeutics, many of them passing through many editions, up to his latest, "Tecnica Medica." In the last few years he has devoted himself to cardiopathology, and founded in 1916 the monthly *Le Malattie del cuore e dei vasi*, which has appeared regularly ever since.——Dr. **R. Raimondi**, a well known pediatrist of Paris, and writer on subjects connected with his specialty.

The Medical Journals and the Strikes.—We mentioned recently that the Swedish Medical Association had announced that until the prevailing strike of printers was over no attempt would be made to get out the monthly, the archives and the transactions published by the Association. Our Buenos Aires and Cuban exchanges were also delayed for weeks on account of the general strike, but—judging from the appearance of the journals—the printing did not seem to have been interfered with. The *Revista Médica del Uruguay* comes delayed with an apology that the recent conflicts between the publishers and the printers had prevented the regular issues. The latest *Correspondenz-Blatt* of Basel, Switzerland, is a delayed double number with a similar notice, and the *Policlinico* of Rome has not been seen for some weeks but a notice has been received apologizing for the delay on account of the printers' strike. The *Nederlandsch Tijdschrift* of Amsterdam also arrives after some delay, merely a very thin number with few of the usual departments, and a notice to the effect that on account of the printers' strike this issue had been made up only of matter already in type. Of course no medical journals have been received from Russia since the end of 1917. France, Brazil and western South America do not seem to have suffered so far in this respect, but the *Journal de Médecine de Bordeaux* announces that after September its price will be raised by 50 per cent. except for students. The expense of publication, it states, has increased by 300 per cent. since 1914. The morning's mail (October 1) has brought the missing Stockholm and Amsterdam exchanges.

LATIN AMERICA

Malaria in Cuba.—According to the director of sanitation of Cuba, the death rate from malaria in that country has dropped since 1898 from 25 per 10,000 to 1.8 in recent years. When the Americans took charge of Cuba malaria occupied the first place in the list of causes of deaths while now it occupies the sixteenth place. In the last two years, however, the mortality has been 2.7 and 2.4 per 10,000, respectively.

Public Health in Recife.—In a report on public health in the municipality of Recife in 1918, just presented by the director of public health of Brazil, he states that during that year there were 9,163 deaths with a mortality rate of 37.4 per thousand which was largely due to the epidemic of influenza. There were only four deaths caused by yellow fever, one by plague, twenty by leprosy and none by smallpox.

Safeguarding Santo Domingo's Health.—It is announced that an appropriation has been made by the American Red Cross to cover the expenses of sending a medical director to Santo Domingo to take charge of the hospital and to make a study of the general health conditions of the island. Disease is prevalent throughout the island and hospital facilities are wholly inadequate. There are only three graduate nurses in the republic, although a training school has just been opened. The military government plans to open a chain of free dispensaries.

Government Services

Personnel of the Medical Department

For the week ending September 26, there were 5,296 officers in the Medical Corps, a decrease of 946 from the previous week. The Medical Reserve Corps contained 3,472. The total number of physicians discharged since the beginning of the war is 26,917.

Army Decorates Navy Officers

Secretary of War Baker, September 5, conferred the decoration of the Distinguished Service Medal on Com. John J. Snyder, M. C., U. S. Navy, a member of the staff of the C. T. and F.

Public Health Service Changes

Sr. Surg. Joseph H. White, Memphis, Tenn., has been directed to proceed to Chicago to investigate hospital facilities in that city. Sr. Surg. Julius O. Cobb, Chicago, has been directed to act as supervisor of District No. 8, with headquarters at Chicago, succeeding Colonel Caldwell.

Foreign Decorations for Navy Officers

The decoration of Commander of the Order of the British Empire Military Division has been awarded to Capt. Charles M. Devalin, M. C., U. S. Navy, in command of Base Hospital No. 3, Leith, Scotland, and Dr. Edwin S. Bogert, M. C., U. S. Navy, in command of Base Hospital No. 2, Strathpeffer, Scotland.

Motor Equipment for Public Health Service

Legislation to provide automobiles for the use of the United States Public Health Service throughout the country has been introduced in both the Senate and House of Representatives. It is proposed to transfer a part of the surplus motor equipment of the War Department to the Public Health Service. The legislation has the approval of the chairmen of the military committees of both the Senate and House and favorable action is anticipated.

School for Naval Medical Officers

A class has been organized at the Naval Medical School, composed of naval medical officers who have completed a course at sea. The school sessions began, September 9, and the course pursued is to be along the lines of the usual instruction, but with a special view of determining the capabilities of the officers in special lines of their profession. It is expected that after ten weeks it will be possible to arrange clinical courses in large medical centers where those student officers who have displayed a marked aptitude in special work may be given advanced postgraduate study.

Army Medical Department Assignments

Brig.-Gen. Walter D. McCaw, assistant Surgeon-General of the Army, returned, July 28, from France, where he had been chief surgeon of the American Expeditionary Forces, and has resumed his duties as head of the Army Medical School, Washington, D. C.——Brig.-Gen. Robert E. Noble, assistant Surgeon-General of the Army, has been relieved from duty in Atlanta, and has reported for duty in the Surgeon-General's Office as chief of the library division, relieving Col. Francis A. Winter, formerly head of the Army Medical School, who has been made chief surgeon of the Southern Department, with station at San Antonio, Texas.

Government Uses New York Hospitals for Injured Soldiers

The United States Public Health Service has taken over the New York Polyclinic Hospital to use exclusively for the treatment of war risk insurance cases. Former soldiers who were injured, if ailments develop directly or indirectly from their war experience, will be treated at this hospital, which until recently was known as Debarkation Hospital No. 4. The Public Health Service took over the Hudson Street Hospital last June. There are accommodations for 450 patients at the Polyclinic and for 120 in the Hudson Street Hospital. Major James L. Robinson, M. C., U. S. Army, is in charge of the former, and Dr. Richard A. Kearney, Washington, D. C., of the latter.

Vacancies in Army Medical Corps

A large number of vacancies occur in the lower grades in the Medical Corps of the regular army. The demand for physicians in the service is still very marked, but only a few physicians apparently now look on the army medical work as a desirable career. One difficulty is that physicians must serve as first lieutenants for five years before they can be promoted to captaincies, and the increased cost of living is cited as a most serious obstacle, the pay of these grades being insufficient. It is understood that there are about 700 vacancies in the medical corps. About seventy-five young physicians recently took the examinations for admission to the Army Medical School, October 1.

Discussion on Establishment of Department of Tuberculosis

The United States Public Health Service has sent the following memorandum to the United States Senate in connection with a measure introduced by Senator Joseph E. Ransdell to establish a department of tuberculosis:

TREASURY DEPARTMENT,
BUREAU OF THE PUBLIC HEALTH SERVICE,
Washington, Aug. 20, 1919.

Memorandum for Senator JOSEPH E. RANSDELL.

It appears from the discussion on Aug. 18, 1919, by the Senate of the bill (S. 1660) to provide a division of tuberculosis in the Public Health Service that there was no difference of opinion as to the necessity of the Public Health Service having appropriations for the study and control of tuberculosis, but there does seem to be a difference of opinion as to the administration of such a fund.

The necessity for the Federal Government bearing its just proportion of the work of the control of tuberculosis is set forth in the report of the Surgeon General of the Public Health Service, under date of January 18, 1919. I do not feel that it is necessary to make any supplemental statement in this regard.

There seems to be no opposition to the Federal Government undertaking its share of the work, but there does seem to be some opposition to the creation of an administrative division to carry on this work. Whether such administrative division is created or not, it is obvious that additional appropriations would require some additional administrative personnel, but the amount expended for administrative personnel would be a negligible part in the expenditure of funds appropriated for the investigation of tuberculosis. Administrative personnel would not be in the nature of large increases as has been forecasted, but would be somewhat along the lines that you have indicated, i. e., the detail of an additional medical officer to the bureau to take charge of the division, and the employment of some additional office personnel which probably would not exceed six or eight assistants and clerks. It has always been the policy of this bureau to decentralize so far as possible its work, and I believe that investigation will show that it conducts its activities with a smaller overhead charge for administration than any other bureau in the Federal Government.

As to the statement that the creation of such a division would require a great building rented in the District of Columbia, I beg to assure you that there is no such intention on the part of this bureau, but a very large proportion of the sums appropriated for tuberculosis work would be expended in field investigations and demonstrations. All that would probably be necessary to house such a division in the District of Columbia would be the provision of four or five office rooms for administrative purposes and for the storing of records and correspondence. It is believed that the Treasury Department would be able to provide this space in buildings already under the control of that department.

I am glad to note in the RECORD that the Senator from Utah [Mr. Smoot] has made the following statement:

"I have no objection to the Government making appropriations for the purpose of assisting in the investigation of tuberculosis. The Senator from Louisiana is no more interested in the subject than I am. The Senator from Louisiana does not know of its ravages and what it has done to the people of the United States more than I know it."

With the above explanation that only a relatively small office force will be involved in the creation of a new division in the bureau, taken in connection with the attitude, as indicated in the above quotation

of the Senator, it is hoped that the Senator will withdraw his opposition and consent to the consideration of this bill, the enactment of which is urgently needed in order that the Federal Government may properly discharge its responsibilities to the Nation and the people.

J. C. PERRY,
Acting Surgeon General.

A determined opposition has arisen in the Senate to the establishment of a separate division of the Public Health Service for this work. It is explained that there is no objection to a federal appropriation to fight tuberculosis, the opposition being to the additional administrative expenses which would come with the creation of the new department. A number of senators want assurance that the money will be used for preventive and combative work in the field and that it will not be used for administrative purposes in the Washington offices of Public Health Service.

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA
San Diego—Kinney, L. C.
San Jose—Hubbard, H. D.

CONNECTICUT
New Haven—Russell, T. H.

FLORIDA
Jacksonville—Dey, W. P.
Pensacola—Payne, W. C.

ILLINOIS
Normal—Sayers, F. E.

INDIANA
Plymouth—Eley, T. C.

IOWA
Griswold—Wyatt, H. L.
Ocheyedan—Adams, B. H.

LOUISIANA
New Orleans—Randall, C. C.

MARYLAND
Guilford—Douglass, L. H.

MASSACHUSETTS
Pittsfield—Prentice, D. D.

MICHIGAN
Ithaca—McWilliams, W. B.

MINNESOTA
Minneapolis—Oftedal, T.

NEW YORK
Brooklyn—De Yoanna, A. A.
New York—Kimball, C. C.
Vaughan, R. W.

NORTH CAROLINA
Charlotte—Matthews, V. M.
Youngsville—Timberlake, C. V.

OHIO
Cleveland—Bell, R. P.
Columbus—Harlor, D. M.
Portsmouth—McCall, D. H.

OREGON
Astoria—Van Dusen, A.
Roseburg—Wade, C. B.

PENNSYLVANIA
Philadelphia—Aaronson, M. A.
Owen, R.
Pierson, M. J.
Pratt, M. L.

RHODE ISLAND
Newport—Gillon, C. J. C.

SOUTH CAROLINA
Trio—Register, D. W.

TEXAS
Dallas—Jablow, H. B.

VERMONT
Burlington—Davis, P. N.

WEST VIRGINIA
McMechen—McCuskey, C. F.

WISCONSIN
Athens—McNicholas, L. T.

Awards of Distinguished Service Medal

The Distinguished Service Medal has been awarded by the commanding general, American Expeditionary Forces, by direction of the President, to the following named officers:

Col. WEBB E. COOPER, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. He commanded with notable success Base Hospital No. 8, at Savenay, which under his efficient administration became the nucleus of a large hospital center, which developed into the largest classification and evacuation hospital in France for patients returning to the United States. By his marked ability in directing the numerous activities under his control he rendered services of conspicuous worth to the American Expeditionary Forces."

Col. PAUL S. HALLORAN, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. He served with great credit as division surgeon of the 90th Division from the date of its organization throughout its service in the field, displaying sound judgment, marked professional skill, and untiring energy. By enforcing effective sanitary measures he maintained the combat strength of his division, and by his able direction of the medical services he was largely responsible for the proper care of the sick and wounded."

Col. CLARENCE J. MANLY, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. He organized and commanded with signal ability the Hospital Center at Beaune, taking charge of it when it was in an unfinished state and at a time when increased facilities were urgently needed. Overcoming numerous adverse conditions, he expedited its completion and rendered invaluable services in furnishing effective medical treatment for large numbers of sick and wounded of the American Expeditionary Forces."

Lieut.-Col. WILLIAM H. TEFFT, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. As commanding officer of Evacuation Hospital No. 7, at Chateau Montsenglaust, he performed his exacting duties with unflagging energy and marked executive ability. Overcoming grave difficulties due to inadequate personnel and equipment he succeeded in receiving, treating, and evacuating a large number of wounded from the Marne offensive with notable success, thereby rendering service of the utmost value to the American Expeditionary Forces."

Major SAMUEL J. TURNBULL, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. As commanding officer of Evacuation Hospital No. 9, he performed his exacting duties with notable success. Overcoming numerous obstacles, by his keen foresight and administrative ability, he was instrumental in securing the prompt evacuation and effective treatment of a large number of sick and wounded."

Foreign Correspondence

PARIS LETTER

PARIS, Sept. 11, 1919.

Postbellum Organization of the Medical Department of the French Army

The cessation of hostilities does not relieve the Army Medical Corps of the obligations imposed by the war. July 10, 1919, the number of sick and wounded still amounted to 78,000, three times the number of equipped beds existing in time of peace. The task that remains to be accomplished would be impossible of performance if the special provisions adopted for the duration of the war with reference to the personnel of the Army Medical Corps and its material means of support were now to be suddenly canceled. While the normal enrolment of the Army Medical Corps during peace times consisted of 1,710, the losses of war have reduced this to 1,400, 116 of whom are in Morocco and 215 on special missions or with the Army of the Orient. It is, therefore, indispensable to keep in the ranks of the Army Medical Corps a sufficient number of active members to permit the assumption of the obligations incumbent on it until such time as medical study and the reorganization of the Ecole du Service de Santé militaire shall be definitely resumed. In view of these facts the minister of war has recently filed the following bill:

During the six months following the date fixed for the cessation of hostilities, and longer, if need be, until the ministerial order shall be issued providing for the readmission of civilian physicians to the Ecole d'application du Service de Santé militaire du Val-de-Grace, doctors of medicine, members of the reserve medical corps or of the territorial army, may be admitted to active service under the conditions established for the duration of the war by the law of Dec. 21, 1916.

The physicians, pharmacists, dentists and administration officers of the Army Medical Corps belonging to the reserve of the army in active service and to the territorial army may, during the two years following the cessation of hostilities, at their request be admitted to intensive courses of instruction with pay, the duration of which shall be definitely fixed for each applicant in accordance with the needs of the service and within the limits of the credits appropriated for such purpose.

Transportation for Physicians in the Liberated Regions of France

M. Doizy, member of the chamber of deputies, recently inquired of the commissioner of the liberated regions as to what measures had been taken to provide transportation for the members of the Army Medical Corps who were devoting their time to the care of the civilian population in the liberated regions, and he is now in receipt of the following reply:

Both civilian and army physicians of the liberated regions have been furnished with credentials to present to the prefects of the departments and to the heads of the transportation service in order that they may secure the needed transportation. On the other hand, the commissioner of the liberated regions has been endeavoring for some time to find a means of replacing automobiles commandeered among the civilian population of the liberated regions by the generals in command and placed at the disposal of army physicians. Since March 29, negotiations with the United States Army have been pending in regard to securing for the service of the transportation department 500 Ford trucks provided with special sanitary equipment. The attention of the administration is likewise directed to the question of the means of transportation to be furnished civilian physicians who have become reestablished in the liberated departments. Within a short time, it will be settled what new or used automobiles shall be appropriated to this service. Automobiles so assigned may be used only by persons performing service that inures to the general welfare.

United States Aid for France

Being desirous of coordinating the activities of the various organizations founded especially to bring aid and succor to

France, the Americans have organized a federation entitled the Federation of American Agencies for the Relief of France. The federation, which has as its American president Myron T. Herrick, former American ambassador at Paris, and as its French president M. Casenave, director of the French services in New York, has sent to France several representatives charged with making an inquiry on the ground, at first hand. Mr. Lawshe, one of these representatives, has arrived in Paris and has conferred with the representatives of the press in order to set before them the program of the federation.

Mr. Lawshe announced the arrival in France of two other representatives of the federation: John Moffat, vice president of the organization, and Mrs. William Astor Chanler, who have brought with them a preliminary fund amounting to several million francs, to be used in the alleviation of the most pressing needs. During their stay in France, they will proceed to make a thorough investigation and then will return to America, where a nation-wide subscription will be opened to raise the sum of $100,000,000, which will be used not only in aid of the population of the devastated regions of France, but also to replenish the funds of various French welfare organizations.

It may also be announced in this connection that the Fonds des orphelins de guerre, which is associated with the American Red Cross, takes care of thousands of war orphans. This orphan fund has just received a check from General Pershing for 94,625 francs. This sum represents a collection taken among the officers of the general staff to which General Pershing had also contributed.

A French Federation of the Societies of Natural Science

The Fédération française des sociétés de sciences naturelles has been formed consisting of thirteen distinct society units: les Sociétés Zoologique, Entomologique, d'Acclimatation, de Pisciculture; l'Association des Anatomistes; les Sociétés de Botanique, de Mycologie, de Pathologie végétale; la Société de Biologie; la Société philomatique; la Société géologique; la Société des Naturalistes parisiens; la Société de Chimie biologique.

This federation has already commenced work. The chief task that it has set for itself is the creation of five categories for the purpose of bibliographic documentation: (1) botany; (2) anatomy and embryology; (3) zoology; (4) general biology, and (5) physiology. Whether this system of documentation shall be founded on an entirely new basis, or whether an adaptation of the systems as they exist at present shall result, it would seem that so vast a program could not well be realized by one nation alone. The creation by an interallied agreement of a bibliographic office would therefore be desirable.

Dental Attention and Gratuitous Medical Attention

Senator Henry Cheron has just introduced a bill in the senate which provides that dental attention shall be included in the law pertaining to gratuitous medical assistance.

MADRID LETTER

Madrid, Aug. 19, 1919.

Ferrán's Antituberculosis Vaccination

Physicians may recall the so-called Ferrán campaign, when in 1885 at the acme of a cholera epidemic, Jaime Ferrán, a physician from Catalonia, began to make in Alcira, Valencia, injections of vaccines or dead cultures of cholera germs. On that occasion, Alcira remained free from the epidemic that played havoc with the neighboring towns, and it has always been grateful to Ferrán. In that campaign Spanish physicians were divided into two partisan groups. As soon as the epidemic was over, Ferrán isolated himself in his laboratory and began to concern himself with the prevention of tuberculosis. To this he has devoted himself since. He has now decided to submit his laboratory results to the fullest clinical investigation. To show the harmlessness of his new vaccine, he has repeatedly injected himself, his wife, his 30-month-old child, his relatives and his pupils. He has obtained a promise of the government, in which the minister of the interior, Dr. Jimeno, was his former assistant, that the authorities would not oppose his carrying out experiments on a larger scale. He decided to do this in Alcira in remembrance of his campaign there in 1885. August 7, accompanied by his wife and a number of prominent physicians from Madrid, Barcelona and Valencia, among whom were Dr. Martinez Vargas, former president of the University of Barcelona, Dr. Pastor, the president of the University of Valencia and also the president of the Medical Association of Valencia, he went to Alcira to begin his investigation there. Dr. Pulido, the president of the board of health of Spain, acted as secretary. In this capacity Dr. Pulido stated that as this was an experimental study which presented no dangers, as shown again and again by the investigator, the sanitary authorities were interested and did not want to hamper with delays due to red tape. More than half of the total population of the town were vaccinated, the vaccinations amounting to 14,000 and the revaccinations to 500. The work yet to be done is the collection of statistics and the compilation of observations.

Scientific Foundation for Ferrán's Antituberculosis Vaccine

What is the scientific basis of Ferrán's new vaccine? I have interviewed him in order to get this information for The Journal. There are bacteria which change on growth in various nutrient mediums. Among these are the types of *B. coli*, the typhoid fever bacillus and the misnamed Pasteurella. The virulence of the different bacteria seems to depend on the medium in which they develop. When the organisms do not cause death, they become adapted to antigen immunizes against the inflammatory effects produces the syndrome of the pretuberculous state. These strains are agglutinated by antituberculosis serum. In its turn, the serum obtained through the utilization of such bacteria as antigen immunizes against the inflammatory effects, produced by the albuminoid toxins of the tubercle bacillus. On the contrary, it does not exercise any apparent action against the sclerotic and caseous changes produced by the lipoid toxins of the same bacillus. There are some varieties of these germs which become so naturalized in the intestine that they finally form part of our intestinal flora. When they induce acute processes they are easily isolated, but it happens otherwise in chronic cases. Ferrán insists that these germs are deeply modified by the medium in which they live for several generations. *The nontoxic strains immunize the body against the action of virulent ones.* The multiple infectious processes which they cause can be healed if they are used as a vaccine, either in the form of killed nontoxic cultures or with antitoxic serum obtained from them. The infections produced by them are very frequent in young animals and men, because these germs, the habitat of which is the intestine, are widely disseminated in nature and because we are born without specific immunity against them. Many of these bacteria, Ferrán believes, can transform themselves into tubercle bacilli in the organism which they are infecting, thus causing the phenomenon of a change of species through sudden mutation. The effort required to accomplish this is so great that very few bacilli can perform it; for this reason, and because the bacilli thus originated are not virulent at the start, instead of causing tuberculosis they are digested and assimilated by the organism as fast as they are produced. This assimilation, he says, makes the body sensitive to tuberculin without being actually tuberculous. We become tuberculous when these mutations are frequent or the resulting tubercle bacilli are virulent. As the albuminoid toxins which are produced by the nonacid-fast bacteria confer a certain immunity against the toxins of the tubercle bacillus, when this germ appears it will find the organism more or less well immunized, and the disease will be more or less acute according to the degree of immunity thus acquired. The tubercle bacillus, grown in series in broth, retains during many generations its most typical characteristics; but after a large number of transformations it ends by losing them and becoming a nonacid-fast bacillus, i. e., what it was before it became an acid-fast bacillus. This property, therefore, constitutes an assumed character which certain nonacid-fast bacteria can use to disguise themselves.

Since tuberculosis must necessarily be preceded by an infection with nonacid-fast bacteria which are endowed with great immunizing power, it will be enough to immunize against these in order to become protected against tuberculosis and in addition against all the processes which such nonacid-fast bacteria can produce.

College for Physicians' Orphans

This month there has been inaugurated in Madrid a college for the needy orphans of physicians. This is an official foundation named after the Principe de Asturias, which was created by a royal decree suggested by Dr. Cortezo. Into this orphan institution, there are admitted the children of physicians who die without leaving any resources to educate their children, something which unhappily happens very often. The funds to support this asylum are furnished by the Colegios de Médicos (medical guilds) which in turn

obtain them, chiefly through the fees for the use of the so-called seal of the Colegios de Médicos, which it is necessary to attach to all official certificates signed by physicians in regard to public health matters, diseases and deaths. Thirty children have already been admitted to the college, all of whom are receiving the best of care. The board of trustees is presided over by Dr. Cortezo, and the treasurer is Dr. Isla Boromburo, dean of the provincial board of charities of Madrid.

LONDON LETTER

LONDON, Sept. 10, 1919.

Women in Industry

Last September the prime minister appointed a war cabinet committee on women in industry. To the committee Dr. Janet Campbell, medical officer to the board of education, presented an able memorandum. Her conclusions are as follows: The average woman is physically weaker than the average man. She cannot compete with him satisfactorily in operations requiring considerable physical strength, while competition in operations of a less arduous but still exacting character may be detrimental to her health in that her power of endurance and her reserve energy are usually less than a man's; and she is often compelled to spend time and strength on domestic tasks which do not fall to his lot. The second fundamental physiologic difference is potential or actual motherhood. This governs to a large extent her industrial power, efficiency and value, and prevents equal competition with men in industry. The conditions under which men and women were employed before the war were not such as to enable them to develop full health and vigor. Low wages, long hours, an inadequate dietary, and lack of exercise in the open air resulted in physical and industrial inefficiency and caused too low a value to be placed on woman's strength and capability. Employment under the conditions existing in the past has probably had an injurious effect on women, though it is difficult to dissociate this from social conditions generally. The insurance act disclosed a large and unsuspected amount of sickness among employed women which compares unfavorably with men. The rise during the war of the tuberculosis death rate among urban women suggests that any considerable increase in the number of women employed and in the period of their employment may cause the female death rate to approximate that of the male. The effects of employment on motherhood are not easy to determine with exactitude. The direct result on the reproductive system is probably largely negligible, except in the case of the multipara engaged in heavy or fatiguing work. The indirect effect is considerable impairment of the general health and vitality. The increasing employment of women has probably accelerated the steady decline of the birth rate observed since 1876. The influence of employment on infant mortality is not clear. Employment of the expectant and nursing mother may react on her personal health by imposing a double burden. But employment under suitable conditions is not in itself injurious to the pregnant woman, while the money earned may enable her to be properly fed. Employment under war conditions has emphasized the importance to health of good food, clothing and domestic comfort, which can be obtained when the wages represent a reasonable recompense for labor. It has been proved that properly nourished women have a much greater reserve of energy than they have been credited with, and that they can be advantageously employed on more arduous occupations than considered desirable in the past. Direct supervision of the health of industrial workers was almost nonexistent before the war. War conditions have emphasized the need for more effective supervision and for research into the cause of industrial fatigue and the methods of preventing occupational diseases. Factory hygiene must become a part of the general system of preventive medicine, which is likely to be the most important branch of medicine of the future.

Demonstration of Artificial Limbs

A large audience of men disabled by the loss of limbs in the war attended a meeting convened by the British Red Cross and the London War Pensions Committee to witness a demonstration of the use of artificial limbs. Illustrations were shown by the cinematograph of the use of and proficiency in artificial limbs, and demonstrations were given by two Americans who had overcome what might have seemed insurmountable difficulties. One was Judge Corley of Texas, who had lost the right arm and shoulder and left arm below the elbow in a railway accident. Without financial resources he reeducated himself and learned a new way of earning a living. He studied law and politics and was elected county judge. He demonstrated the mechanism of the hook attachment to the left elbow, which he had invented and perfected himself, by which he could do all the things that ordinary people could do. He could garden, play croquet, swim, and drive an automobile. He was independent of help. His trouble was that people would insist on helping. Mr. Michael Dowling, president of the Olivia State Bank, Minnesota, said that at the age of 15 he was frozen in a blizzard, resulting in the loss of both legs below the knee, the left arm below the elbow, and the fingers of the right hand, leaving only a third of the thumb—a bit of thumb which he explained was worth a million dollars. A son of Irish emigrants, he was without means and without relatives. He was boarded out at public expense for two years, but got his chance by getting two terms in a college, on which he founded his self-education and subsequent career. He is an expert motorist and can do everything that an ordinary person can do except tie a bow-tie.

Tuberculin Still a Doubtful Remedy

It is disappointing to find that after the immense amount of research devoted to vaccine therapy in general and tuberculin in particular the value of the latter should still remain doubtful. A report on the sanatorium and tuberculin treatments for consumption has been issued by the Medical Research Committee. It is found that sanatorium treatment does not restore the patients to the average health of the general population. As to tuberculin, many who received the treatment made good recoveries, but there are no grounds for supposing that they would not have progressed as satisfactorily had the injections been withheld. This conclusion is described as "distinctly disappointing."

Charles Arthur Mercier, M.D., F.R.C.P. (Lond.), F.R.C.S. (Eng.)

Dr. Mercier, the alienist and criminologist, has died in his sixty-seventh year. Like many distinguished Englishmen, he was of Huguenot stock. The son of a clergyman who died leaving the family in poor circumstances, he began life as a cabin boy and later became clerk in a London warehouse. He reached a position which enabled him to follow his bent to study medicine. He joined the London Hospital and came under the influence of Hughlings Jackson and specialized in psychology. He was appointed medical officer in two large public asylums and then resident physician in a private asylum. A logical and incisive writer and a keen controversialist, he was the foremost authority on the legal aspect of insanity. In 1909 he was awarded the quinquennial Swiney Prize by the College of Physicians for the best work on jurisprudence. This was his book on "Criminal Responsibility in the Insane." In the present year he received the same distinction for his work on "Crime and Criminals." Other works from his pen, which have all achieved fame, are "Sanity and Insanity," "The Nervous System and the Mind," "Lunacy and Law for Medical Men," "Psychology, Normal and Morbid," and "Textbook of Insanity." In 1910 he entered into another field and published his "New Logic," in which he attacked the Aristotelian logic with great vigor, though not with great success. His definition of crime as "due to temptation or opportunity, the environmental factor of stress, acting on the predisposition of the offender, the inherent or constitutional factor," may be taken as a typical example of his capacity for analysis and clear and logical thinking.

Marriages

LEO BRISON NORRIS, Lieut., M. C., U. S. Navy, Washington, D. C., to Miss Marion Hungerford of Marshall, Md., September 16.

EUGENE HENRY MCCAFFREY, Des Moines, Iowa, to Miss Margaret Alice Carroll of Davenport, Iowa, September 24.

ROSS REYNOLDS MAY, Whitewright, Texas, to Miss Pauline Lenox of Pendleton, Ark., at Pine Bluff, Ark., August 27.

NATHANIEL W. WINKELMAN, Philadelphia, to Miss Lillie C. Gabel of Savannah, Ga., at Philadelphia, September 16.

SIDNEY YANKAUER, New York City, to Miss Margaret Irene Kerrins, in New York City, September 22.

ROBERT CULLEN GOOLSBY, Forsyth, Ga., to Miss Margaret Laney of Columbus, Ga., September 2.

Deaths

August Hoch, Montecito, Calif., well known as a psychiatrist, died in the University Hospital, San Francisco, from nephritis, September 25. Dr. Hoch was born in Basle, Switzerland, April 20, 1868, and came to America in 1887, having had the training of the Gymnasium at Basle. He received his medical degree at the University of Maryland in 1890. Subsequent to his graduation he worked in the Johns Hopkins University from 1890 to 1893 and at the Universities of Strassburg, Leipzig and Heidelberg in 1893 and 1894. Returning to the United States he became assistant physician in the MacLean Hospital, Waverly, Mass., from 1893 to 1905, acting as instructor in neuropathology at the Tuft's Medical School, Boston, during the last three years in this service. He was assistant physician to the Bloomingdale Hospital at White Plains, N. Y., for four years acting at the same time as instructor in psychiatry in the Cornell University Medical School. In 1909 he became professor in the same school, which position he held until 1917, serving also as director of the Psychiatric Institute of the New York State Hospital for the Insane at Ward's Island, N. Y. He was a member of the American Neurological Society, the American Psychological Association and the American Medical-Psychologic Association. In 1917 because of ill health he went to California, continuing however, to carry on considerable literary work in his specialty. He was for a time on the editorial staffs of the *Journal of Abnormal Psychology, Mental Hygiene* and the *Psychiatric Bulletin*. On the foundation of the *Archives of Neurology and Psychiatry*, he became a member of the editorial board, and up to the time of his death, devoted much time and effort to work in connection with this publication. Dr. Hoch was regarded as one of our leading psychiatrists, as a man with well balanced conservatism which prevented him from being swept off his feet by the radical movements which have occurred in modern psychiatry during the last decade.

Joseph Henry Reuss ⊕ Cuero, Texas; College of Physicians and Surgeons in the City of New York, 1889; aged 52; a specialist in surgery and gynecology; for many years head of the Marsalis Hospital, Dallas, Texas, and later proprietor of the Reuss Memorial Hospital, Cuero; chief surgeon of the San Antonio and Aransas Pass Railroad; formerly president of the South Texas Medical Association; a member of the Board of Medical Examiners of the State of Texas from 1901 to 1905; for several years president of the Cuero Commercial Club; died in the Rice Hotel, Houston, Texas, September 17, from acute gastritis.

Charles Martin Troppmann, San Francisco; California Eclectic Medical College, Los Angeles, 1897; College of Physicians and Surgeons, San Francisco, 1900; aged 56; adjunct professor of materia medica, pharmacology and prescription writing, and later professor of pediatrics in the College of Physicians and Surgeons, San Francisco; died at his home, September 20.

Howard F. Pyfer ⊕ Norristown, Pa.; Jefferson Medical College, 1897; aged 47; a specialist on diseases of the eye, ear, nose and throat; otologist to the Charity Hospital, Norristown; and laryngologist and ophthalmologist to the Norristown State Hospital; also a pharmacist; died at his home, September 5, from bronchopneumonia.

Theodore F. Brown, Sandford, Ind.; Indiana Eclectic Medical College, Indianapolis, 1886; aged 75; a practitioner since 1865; a veteran of the Civil War during which he served in the Seventy-First Indiana Infantry, and Sixth Indiana Cavalry, and was a prisoner in Andersonville, Ga.; died at his home, September 1.

Alexander Agnew Thomson, Carlyle, Pa.; Jefferson Medical College, 1864; aged 78; treasurer of Cumberland County in 1875; later sheriff, deputy clerk of the courts; in 1890 appointed postmaster, and once county sealer of weights and measures; died at his home, September 15.

William H. H. Schrock, Stoyestown, Pa.; Eclectic Medical Institute, Cincinnati, 1908; aged 39; a member of the Medical Society of the State of Pennsylvania; died in the Johnstown Memorial Hospital, August 11, from embolism following an operation for appendicitis.

Alexander A. McNeil, Brooklyn; Ensworth Medical College, St. Joseph, Mo., 1898; aged 45; superintendent of the Brooklyn Gas Company; died at the home of his mother in St. Louis, September 8, from meningitis following influenza.

Patrick James Byrne, Cleveland; Western Reserve University, Cleveland, 1893; aged 53; coroner of Cuyahoga County, Ohio, for seven years, and a pioneer in the "safety first" movement; died at his home, September 14, from ptomain poisoning.

Benjamin Almerin Green, Longmeadow, Springfield, Mass.; College of Physicians and Surgeons, Boston, 1910; aged 39; an associate Fellow of the American Medical Association; also a dentist; died at his home, September 3.

Peter S. Clark, Darien, Ga. (license, Georgia, 1881); aged 62; city physician of Darien, and physician of McIntosh County, Ga.; died in a hospital in Savannah, Ga., September 12, after an operation for appendicitis.

Harley Ames Reed, Fort Ritner, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1904; aged 47; while returning from Albuquerque, N. M.; died on a Santa Fe train, near Chicago, September 11.

Charles W. Laciar, South Bethlehem, Pa.; College of Physicians and Surgeons, Baltimore, 1894; aged 48; proprietor of the Bethlehem Bill Posting Company; died at his home, September 9, from heart disease.

George Davis Swett, Albany, Ohio; Eclectic Medical Institute, Cincinnati, 1897; aged 48; a member of the Ohio State Medical Association; died at his home, September 14, from heart disease.

Hamilton Price Duffield ⊕ Marshalltown, Iowa; Rush Medical College, 1870; aged 74; for many years chief surgeon of the Iowa Soldiers' Home, Marshalltown; died in Omaha, September 7.

James A. Dickey, Bristol, Tenn.; American Medical College, St. Louis, 1889; aged 69; a practitioner for nearly half a century; died at his home, September 4, from cerebral hemorrhage.

Felix B. Hunter, Falkville, Ala.; Vanderbilt University, Nashville, Tenn., 1881; aged 59; a member of the Medical Association of the State of Alabama; died at his home, August 31.

Alonzo Maywood Forsythe ⊕ Maynard, Ohio; Ohio Medical University, Columbus, 1903; aged 51; a specialist in obstetrics; died in Corry, Pa., August 29, from cerebral hemorrhage.

Charles William Noble, Dallas, Iowa; St. Louis College of Physicians and Surgeons, 1893; aged 57; also a druggist; was found dead in his office, September 10, from cerebral hemorrhage.

James Townsend Wolfe, New Orleans; Tulane University, New Orleans, 1901; a member of the Louisiana State Medical Association; was shot and killed by his wife, September 5.

Francis M. Smiley ⊕ Kewanee, Ill.; Rush Medical College, 1879; aged 60; a specialist in diseases of the eye and ear; died in his office, September 15, from cerebral hemorrhage.

Brinsley Collins Graves, Cisco, Ill.; Missouri Medical College, St. Louis, 1885; aged 67; died at the home of his brother in Sturgeon, Mo., September 8, from cerebral hemorrhage.

Francis Marion Smith ⊕ Refugio, Texas; Memphis (Tenn.) Hospital Medical College, 1902; aged 44; died in the Victoria (Texas) Hospital, September 6, from cerebral abscess.

William H. H. Roberts, Grovania, Ga.; Jefferson Medical College, 1860; aged 80; captain in the Confederate service during the Civil War; died at his home, August 28.

James Hays, Dayton, Ohio (license, Ohio, 1896); aged 82; a surgeon of U. S. Volunteers during the Civil War; died at the home of his son in Evanston, Ill., September 15.

Abraham L. Hoover, Denver; College of Physicians and Surgeons, Keokuk, Iowa, 1873; aged 77; died at his home, September 11, from carcinoma of the rectum.

James W. Good ⊕ Paden City, W. Va.; University of Louisville, Ky., 1894; aged 61; was killed in a runaway accident near Sistersville, W. Va., September 7.

Stanley L. Baird, Phoenix, Ala.; Homeopathic Medical College of Missouri, St. Louis, 1903; aged 43; died at his home, August 26, from pneumonia.

Charles O. Arnold, Osage City, Kan.; Chicago Physio-Medical Institute, 1887; aged 62; died at his home, August 31, from cerebral hemorrhage.

John P. Burford, Indianapolis; Medical College of Indiana, Indianapolis, 1879; aged 71; died at the home of his brother in Indianapolis, September 13.

Joseph Vincent Antill, Philadelphia; Jefferson Medical College, 1889; aged 66; died at his home, September 9, from angina pectoris.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

FORMALDEHYDE LOZENGES

Report of the Council on Pharmacy and Chemistry

The Council has voted Hex-Iodin (Daggett and Miller Co., Inc., Providence, R. I.), Formitol Tablets (E. L. Patch Co., Boston), and Cin-U-Form Lozenges (McKesson and Robbins, New York City) inadmissible to New and Nonofficial Remedies, and authorized publication of the report which appears below.

W. A. PUCKNER, Secretary.

Some years ago, the Council published (THE JOURNAL A. M. A., Aug. 28, 1915, p. 816) a report on Formamint, a proprietary medicine widely exploited as a peculiar chemical compound of sugar of milk and formaldehyde. The formaldehyde was said to be liberated slowly by the action of the saliva, and because of this liberation of formaldehyde, Formamint was claimed to be a powerful germicide. Extravagant claims were made for its curative and prophylactic effects. The Council found that the therapeutic claims were grossly unwarranted and that its exploitation to the public was a public danger.

During the recent epidemic of influenza, a variety of tablets or lozenges were advertised, and are still being advertised, having formaldehyde, in some form or other, as the nucleus around which revolve the therapeutic claims. In some cases, the advertising clearly indicates the character of the formaldehyde compound that is claimed to be present; in others the statements are vague and indefinite or misleading.

It is hardly necessary to remind physicians that the use of tablets containing hexamethylenamin or other formaldehyde compounds can neither cure respiratory infections, nor even confer protection against such infections. To be effective, formadehyde would need to be supplied to the entire respiratory tract continuously for some time or else in concentrations that would be distinctly irritant and damaging to the tissues. Saliva-dissolved tablets, obviously cannot reach the nasal or tracheal mucosae directly; and the application of quickly acting concentrations of formaldehyde is out of the question. This altogether aside from the fact that hexamethylenamin, the basis of some of these tablets, does not liberate formaldehyde in the mouth, and for this reason alone would be quite useless for this purpose! (See Hanzlik and Collins, *Archives of Internal Medicine*, November, 1913.)

An inefficient antiseptic is more than merely useless; it is a menace to public safety, in that it tends to lead to the neglect of rational and effective protective measures. It therefore seems advisable for the Council again to call the attention of physicians to the subject. Accordingly, three specimens of these products were purchased and examined in the Association's Chemical Laboratory.

Hex-Iodin

Hex-Iodin (Hexamethylenetetramine and Iodum) Lozenges are manufactured by Daggett and Miller Company, Inc., Providence, R. I. They weigh 15½ grs. each, are sweetened and are flavored with mint or menthol. The package and circulars do not contain a definite statement of composition. The rather indefinite synonyms "Hexameth. and Iodine Comp." and "Hexamethylentetramine and Iodum" suggest that the lozenges contain hexamethylenamin and free iodin. The further statement that they "contain the combined medicinal antiseptic and prophylactic properties of Hexamethylenetetramine and Iodum" is also rather indefinite. The therapeutic action claimed for the lozenges, however, could only be produced by free iodin and by liberated formaldehyde.

It is unnecessary to discuss in detail the extravagant claims made for these lozenges. The inefficiency of hexamethylenamin has already been referred to; the limitations of iodin, free or combined, in lozenge form, need not be discussed because the examination made in the A. M. A. Chemical Laboratory showed that Hex-Iodin lozenges contained no free iodin, and only traces of combined iodin. Neither formaldehyde nor paraformaldehyde was present; hexamethylenamin was present but, the lozenges being neutral no formaldehyde is generated in contact with water or with the alkaline saliva.

Thus Hex-Iodin is shown to be worthless for the purpose for which it is advertised. Of the two important ingredients said to be present, iodin and hexamethyleuamin, only traces could be found of the former while the latter, as has been shown, is incapable of exerting any effect when used as the manufacturers direct.

Formitol Tablets

These tablets are prepared by the E. L. Patch Co., Boston. Each tablet weighs 13½ grs. They have the odor of thymol or menthol and an acid taste and reaction. They are, according to the label:

"For the throat and mouth. Soothing, Astringent, Antiseptic. Rapidly destroys germs of infection, preventing and relieving sore throat and mouth."

In a circular, it is stated, that one of the qualities of Formitol:

". . . is the generation of formaldehyde when in contact with water or the saliva."

"Besides generating formaldehyde, Formitol, Patch contains astringent, demulcent and soothing ingredients which render the combination unusually effective."

A bacteriologic report is given in this circular in which it is stated that, in 2½ minutes one Formitol Tablet rendered sterile a plate culture of a "characteristic throat micrococci." The instructions are to dissolve a tablet in the mouth, slowly, once an hour or a half-tablet every half hour.

The A. M. A. Chemical Laboratory reported that Formitol Tablets contained formaldehyde (or paraformaldehyde), an ammonium compound, and some hexamethylenamin. It is probable that the formaldehyde (or paraformaldehyde) was produced by the decomposition of hexamethylenamin originally present in the tablets but decomposed by long contact with the acid.

These tablets differ from Hex-Iodin in that they really contain active formaldehyde and, therefore, possibly produce antiseptic effect in test-tube cultures. The conditions in the mouth, however, are very different from those in the test-tube, since in the mouth the formaldehyde would be immediately "bound" or absorbed. The claimed absence of irritation indicates sufficiently the absence of efficient quantities of formaldehyde under clinical conditions.

Cin-U-Form Lozenges

Cin-U-Form Lozenges, manufactured by McKesson and Robbins, New York City, are marketed in bottles of 24 for 25 cents. They have a strong odor of cinnamon, weigh 15½ grs. each, and are acid in taste and reaction. The label states that they contain:

"Cinnamon, Eucalyptus, Formaldehyde and Menthol—all powerful germicides against Influenzal bacilli, but not injurious to the system in this palatable form."

A circular contains the same statement as to composition and claims further that they:

". . . help to prevent the infection of Spanish Influenza, Pneumonia, Grip Colds and to guard against Sore Throat, Tonsilitis, Pharyngitis, etc."

The A. M. A. Chemical Laboratory reported that Cin-U-Form Lozenges contained some formaldehyde (or paraformaldehyde) and no hexamethylenamin. It is obvious that the mouth and throat cannot be "disinfected" by these lozenges. They would be totally ineffective against bacteria that enter through the nose; they cannot prevent influenza, pneumonia, etc.

Correspondence

SPOILED CANNED FOODS AND BOTULISM

To the Editor:—In the *Journal of Medical Research* for January, 1919, there appeared an article, "The Bacteriology of Canned Foods," by Dr. John Weinzirl; and an abstract was printed in THE JOURNAL, April 5. This paper is a report on the bacteriologic findings in 1,018 samples of factory canned foods. The salient features in the summary to the paper are as follows:

1. About 17 per cent. of the cans examined were spoiled and 6 per cent. underprocessed, the balance being normal edible cans of food.

2. Viable bacteria, bacterial spores, yeasts and molds, representing thirty-eight species, were found in the spoiled and underprocessed cans and in 23 per cent. of the normal cans.

3. The organisms recovered from the cans were obligate anaerobes, obligate aerobes and facultative anaerobes.

4. The organisms found in the unspoiled cans were practically all spore-bearing obligate aerobes.

5. The organisms found in the spoiled and underprocessed cans included both spore bearers and nonspore bearers. The spoilage of cans of fruits and vegetables is attributed to yeasts and anaerobes. Spoilage of the sardines is considered as due to facultative anaerobes of the colon group which enter the cans in the intestine of the fish.

6. It is stated by the author that cans containing anaerobes are likely to spoil before leaving the packer, owing to the favorable anaerobic conditions present in a perfectly sealed can, and that, therefore, such cans would rarely reach the market. Anaerobes are also "apt to decompose food and cause putrid odors."

7. Aerobic organisms are not considered a source of spoilage except in the case of sardines, because they consist mainly of spore-bearing obligate aerobes and, while the spores are not killed by the processing, growth is prevented by the anaerobic conditions prevailing in the cans.

8. The presence of living organisms in the cans is due to insufficient sterilization rather than to leakage.

9. Members of the paratyphoid-enteritidis group and *B. botulinus* were not found in the cans examined.

Dr. Weinzirl draws the following conclusions as the result of his work:

"1. Commercial canned goods as found in the markets are not always sterile, but may contain viable spores of bacteria.

"2. The living spores found in commercial canned goods are unable to grow in the food due to the absence of oxygen.

"3. The vacuum is essential to the preservation of canned food under present methods of processing.

"4. Food poisoning organisms, such as *B. botulinus, B. enteritidis,* etc., are not found in commercial canned foods."

From the standpoint of the consumer, the paper is open to a number of criticisms. Perhaps the most fundamental one is in regard to the restricted and therefore misleading use of the term "commercial." To the lay mind the term commercial canned is synonymous with factory canned foods as opposed to home canned foods. But Dr. Weinzirl restricts the term to refer to those factory canned goods in which no spoilage has been detected and which are still being offered for sale. As soon as spoilage is detected and the can removed from the stock or returned by the purchaser, it automatically ceases to be a "commercial" can and becomes a spoiled sample. He admits, however, that spoilage is not always detected and that some spoiled cans remain on the market as commercial cans. Three such spoiled cans are included among the "commercial" or unspoiled cans which he examined. But for some unexplained reason he made bacteriologic examinations of only two of these cans, while the third can, which was the only one suggesting botulinus spoilage was not examined. This is unfortunate in view of the conclusions he derives from his work.

The point that I wish to make clear is that when Dr. Weinzirl says that "*B. botulinus* is not found in commercial canned food," he means that it is not found in unspoiled factory canned foods. The consumer is likely to draw the conclusion that *B. botulinus* is never found in factory canned foods. A miner or engineer buying a large stock of canned foods to be used months hence would be lured into a false sense of security as regards factory canned foods.

We might just as readily and with as much safety to the consumer divide home canned foods into two groups similar to the "commercial" and "spoiled" samples of Dr. Weinzirl's, and draw the same conclusions concerning them. This would, however, be most misleading and dangerous to the public. There is no sharp line of demarcation between the spoiled and the unspoiled. There is a period during the spoiling process when food is only slightly suspicious, and whether it is eaten or not depends entirely on the alertness of the consumer. A number of women have died of botulism because they tasted canned food to see if it was spoiled, and others have died because the cook failed to detect the spoilage.

Unless the canners can show that no spoilage from *B. botulinus* occurs in factory canned foods, the consumer of such products is no more safe from botulism than the person who eats home canned foods. For it can be said of home canned foods, quite as truly as of commercial canned foods, that *B. botulinus* has never been found in normal cans showing no signs of spoilage. The occurrence of botulism from the eating of slightly spoiled home canned foods was established by examination of necropsy material and of cans showing signs of botulinus spoilage, and not from an examination of normal cans selected at random.

A second criticism of the paper concerns Dr. Weinzirl's justification for the statement that *B. botulinus* is not found in unspoiled factory canned goods.

The total number of "commercial samples" examined was 782 out of a total pack estimated by Dr. Weinzirl as 250,000,000 cases, or more than a billion cans. This is too small a percentage on which to base a conclusion in regard to so vital a subject as food poisoning.

The technic used is open to criticism. The result would be more convincing if the author had made tests for the specific botulinus toxin to substantiate his bacteriologic findings. The most reliable method of demonstrating the presence of *B. botulinus* is to test both the contents of the can and the cultures made from the contents of the can for the specific toxin, rather than to depend entirely on the isolation of the organism. In our own experience we have been able to demonstrate the presence of *B. botulinus* toxin in jars of home canned food from which we failed to isolate the organism. Also the author does not state how long he incubated his cultures before reporting negative findings. In examining recently processed cans it would be necessary to take into account the inhibiting effect of heat on the development of the spores of *B. botulinus.*

No data are given by Dr. Weinzirl as to the length of the periods that had elapsed between the processing of the cans and the making of the bacteriologic examinations. This point is important since it might be assumed that anaerobes if present would develop quickly, owing to the excellent anaerobic conditions present in sealed cans. In tests made to determine the resistance to heat of the spores of *B. botulinus* (THE JOURNAL, Jan. 11, 1919, p. 88), it has been shown that development of the spores is inhibited in direct proportion to the length of exposure and intensity of the heat. After exposure to steam at a pressure of 10 pounds for twenty minutes and 15 pounds for ten minutes, the spores of the most resistant strains of *B. botulinus* in my collection remain dormant for fifty and fifty-three days, respectively, at 28 C., and then develop quickly and normally and produce toxin. Strains which are killed by lower temperatures do not lie dormant for so long a period when injured by heat. Fifty days, therefore, represents approximately the limit of heat inhibition. Allowing a month for signs of spoilage to become apparent in the cans, it is evident that at ordinary summer temperatures the bulk of cans containing *B. botulinus* will show signs of spoilage within three months after being processed. If a canner's pack is kept three months and then a few of the unspoiled cans are examined, there will be small chance of isolating *B. botulinus.* On the other hand, if

unspoiled cans are examined before the end of two months and, in incubating, allowance is not made for the inhibitory action of heat, there will be small chance of isolating the organism. Such examinations cannot serve as an adequate basis for drawing conclusions as to the presence or absence of *B. botulinus* in factory canned foods. Dr. Weinzirl gives no data as to the age of his "commercial" samples. He lists three spoiled "commercial" samples, but does not give a bacteriologic examination of the most suspicious one of them.

From a consideration of the foregoing, I am of the opinion that Dr. Weinzirl furnishes very unsatisfactory evidence on which to base his conclusion that food poisoning organisms, such as *B. botulinus*, *B. enteritidis*, etc., are not found in commercial canned goods.

I believe we are justified in assuming, until it has been proved otherwise, that *B. botulinus* will occasionally be present in factory canned foods for the following reasons:

1. It frequently occurs in the garden, and there is no reason for assuming that it is not carried into the cans along with the other bacteria (Burke, G. S.: Occurrence of B. Botulinus in Nature, *J. Bacteriol.*, September, 1919).

2. The spores of *B. botulinus* are highly resistant to heat, and the canning processes are not sufficient to destroy them. There is nothing inherent in the factory methods of canning to make these products less subject to contamination with *B. botulinus* than home canned foods.

3. The spores of *B. botulinus* are inhibited by heat, and cans that are put on the market in less than two months may contain such spores. While the bulk of spoilage is probably apparent within three months after processing if the cans are kept at a temperature of 22 C. or above, there may be other inhibiting factors not yet determined which would still further delay development. If the cans are kept at a low temperature, as in cold climates, development will be delayed indefinitely.

4. Cans containing organisms which later cause their spoilage do get on the market, as is evident by frequent lawsuits over the spoilage of goods. Also such spoiled "commercial" cans are responsible for cases of food poisoning, although Dr. Weinzirl states that "although the public press in America has reported cases of food poisoning attributed to canned goods, it may be stated at the outset that this is mere assumption which has never been established by scientific research." This is not altogether true. The syndrome in cases of botulism in human beings and in chickens is well established, and the connection of the disease with spoiled canned fruit and vegetables has been demonstrated beyond all question in outbreaks caused by home canned goods. In regard to outbreaks of food poisoning from factory canned foods to which, of course, Dr. Weinzirl refers although he uses the general term "canned foods," I should like to describe a case of which I have personal knowledge:

In San Rafael, Calif., in April, 1918, a woman and several chickens developed typical symptoms of botulism three days after eating factory canned corn. This corn had been slightly warmed and did not taste good. The woman recovered slowly, but two of the chickens died on the fourth day. One of these was sent to me for examination. An examination of the crop and gizzard contents was negative for *B. botulinus*. In view of the typical clinical picture in both the woman and the chickens and the record of spoiled canned food being eaten three days before the onset of the disease, this negative finding, although very disappointing, cannot be looked on as casting doubt on the physician's diagnosis.

In many cases of food poisoning similar in every respect to the San Rafael case except that the poisonous food was home canned instead of factory canned, *B. botulinus* has been isolated from the crops and gizzards of the dead chickens and from spoiled cans of the same pack. I have not always been successful in isolating the organism from all the dead chickens. In one case the organism was isolated from seven out of ten chickens, but in another case from only one out of twelve chickens. Obviously, the negative finding in the San Rafael chicken means little. In the case of factory canned goods it is impossible to trace other cans of the same pack.

The San Rafael case was reported as botulism by the physician in charge to the state board of health and to the U. S. Bureau of Chemistry, and the stocks of the local grocer were searched for other suspicious cans. It seems unfortunate that an expert working for the National Canners Association should not have heard of this case or, having heard of it, should ignore it.

With our present knowledge we must assume that there is a decided possibility of *B. botulinus* being present in factory canned products, and that some of these cans will reach the consumer.

The time is ripe for a thorough investigation of spoilage in factory canned foods to determine if *B. botulinus* is ever present. This will determine the advisability of requiring canners to keep their products at a favorable temperature for three months before placing them on the market.

It is also essential that all cases of food poisoning attributed to factory canned products be investigated with the object of proving conclusively that the poisoning is due to the toxin of *B. botulinus*, or if not to the toxin of *B. botulinus*, to some other definite substance. Physicians, health officers and veterinarians throughout the country can make this possible by familiarizing themselves with the clinical features of botulism (Monograph 8, Rockefeller Institute) and reporting all such cases to the U. S. Department of Agriculture, Bureau of Chemistry, at Washington, D. C., or to Stanford University, Calif., or to other investigators working on the problem. Samples of the spoiled food, dead chickens or necropsy material should be sent to these laboratories together with a full report of the clinical history of the case, brand and condition of the food eaten. It is only by cooperation between the physicians and health officers and the laboratories that the question can be quickly and satisfactorily cleared up. I consider it only a question of time until the connection of botulism with factory canned products is fully and satisfactorily established.

Dr. Weinzirl's paper is important in that it indicates very clearly that factory canning processes are not sufficient to sterilize the contents of the cans, and that therefore spores which are highly resistant to heat, such as the spores of *B. botulinus*, may survive the processing.

I do not wish to minimize the efforts which first class canners are making to put out a good and safe product, nor do I wish to exaggerate the danger of spoiled foods reaching the consumer. Botulism is of comparatively rare occurrence, even from home canned foods, because most people are critical of their food.

The canners and their bacteriologists, however, are not justified in denying the occurrence of botulism from commercially canned foods until they have proved that spoilage from *B. botulinus* never occurs in factory canned foods, and until they have given some other adequate explanation of the cases of food poisoning attributed to factory canned products which are to all clinical appearances botulism.

GEORGINA S. BURKE, Stanford University, Calif.

AN AMPLIFICATION OF YOUNG'S RULE

To the Editor:—The inadequacy of Young's rule when it is desirable to determine the dosage of medicines for infants not exactly 1 year or 2 years of age is felt by most physicians. The difficulty is met by each in his own way, usually entailing the memorizing of doses given by some authority for the different ages.

I wish to submit a modification or amplification of this rule by which the dosage can be calculated for any age in months with the same degree of accuracy as with years.

Take the age of the infant in months and add 144 instead of 12, proceeding as with the old rule. For example, the dosage at five months is thus obtained:

$5+144=149\div5=30$ approximately, or $\frac{1}{30}$ of the adult dose.

For a baby of 16 months:

$16+144=160\div16=10$ or $\frac{1}{10}$ of adult dose.

This operates exactly as Young's rule and is, of course, subject to the same limitations. The possibilities for much more extensive application, however, are obvious.

R. E. CLOUD, M.D., Ensley, Birmingham, Ala.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TEMPERATURE OF AN ENEMA

To the Editor:—In Osler's Practice of Medicine, Ed. 6, 1906, page 702, under the treatment of uremia, in the seventh line, I find: "Grandin states that irrigation of the bowel with water at a temperature from 120 degrees to 150 degrees is most useful." Is that a safe temperature to recommend? I believe it was a Fahrenheit thermometer that was used to test the heat of the scalding bath at a slaughter shop where I saw hogs scalded at a temperature of 140 degrees. Since that time I have scalded a chicken in half a minute in water at 144 F. With this knowledge I have consulted two other editions of this work, the editions of 1903 and 1917, to see if it might be a misprint; but both have the same statement. I believe that such a treatment could not help but scald the membranous coat of the bowels into blisters. What explanation could you give for Dr. Osler to include such a recommendation to be followed by some man who is at his wits' end as to what next to try and who may not have any idea what a temperature of 140 F. will do? J. E. Hostetter, M.D., Gap, Pa.

Answer.—The subject of enteroclysis, in all its phases, is discussed at length by Robert Coleman Kemp in the Reference Handbook of the Medical Sciences, **4**:40, 1914. The highest temperature of an enema mentioned by him is 120 F.; in fact, water at that temperature is favored in the prevention and treatment of shock from any cause, but especially shock due to hemorrhage. It is possible, however, that the statement by Grandin, quoted by Osler, has reference to the temperature of the water in the container, before it reaches the bowel. Kemp publishes a table, in connection with his discussion of proctoclysis, showing that when the temperature of the water in the container is 190 F., the final temperature of the water in the rectum is only 115 F., the difference in temperature being dependent on the number of drops entering the bowel per minute and the length of the rubber tubing. Water at a temperature of 115 F. in the container will enter the rectum at the same temperature when flowing at the rate of 200 drops a minute.

REGULATIONS FOR PRESCRIBING ALCOHOL

To the Editor:—Kindly advise me whether special blanks are necessary in prescribing absolute alcohol. F. E. D., Chicago.

Answer.—No. Instructions to collectors of internal revenue, issued by commissioner of internal revenue, June 30, 1919, regarding the enforcement of the war prohibition law, direct, under the head of medical uses of wines and spirits, that physicians may prescribe wines and liquors for internal use or alcohol for external uses, but such prescriptions shall be in duplicate, both copies to be signed in the physician's handwriting, the quantity prescribed for a single patient at a given time not to exceed 1 quart, and no alcoholic liquors to be prescribed unless the patient is under the constant personal supervision of the physician. Prescriptions must indicate clearly the name and address of the patient, including street and apartment number if any, date when written, condition or illness for which prescribed, and the name of the pharmacist to whom the prescription is to be presented for filling. The physician must keep a record in which a separate page shall be allotted to each patient. The record must show under the patient's name and address the date of each prescription, the amount and kind of liquors dispensed, and the name of the pharmacist filling the prescription.

ABBREVIATION IN PRESCRIPTION FOR PAREGORIC

To the Editor:—I write for information. I wrote a prescription and in it I wrote "Tinct. Camp. Co." I was corrected and was asked to write "Tinct. Opii Camphorata." Please tell me whether I was correct in writing it as I did.

Esther Gimson, M.D., Wisconsin Veterans' Home, Waupaca, Wis.

Answer.—It depends on what you meant by "Tinct. Camp. Co." "Compound Tincture of Camphor" is official in the British Pharmacopeia with "Paregoric" as a synonym. "Tinct. Camp. Co." might be interpreted as an abbreviation for this preparation. However, the British "paregoric" differs from the U. S. P. "paregoric" (camphorated tincture of opium) in containing 25 per cent. more opium, 25 per cent. more benzoic acid and about 13 per cent. more alcohol. Further, it contains only 75 per cent. as much camphor and oil of anise as the U. S. P. paregoric. Unless you wished to prescribe the B. P. preparation, you should have written the prescription according to the correction suggested.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
Arkansas: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. Stout, Brinkley. Sec. Eclectic Board, Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.
California: Sacramento, Oct. 20-23, Sec., Dr. Chas. B. Pinkham, Butler Bldg., San Francisco.
Colorado: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
Connecticut: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Board, Dr. James E. Hair, 730 State St., Bridgeport.
District of Columbia: Washington, Oct. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
Georgia: Atlanta, Oct. 14-15. Sec., Dr. C. T. Nolan, Marietta.
Idaho: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.
Kansas: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.
Louisiana: New Orleans, Nov. 4. Sec. Homeopathic Board, Dr. F. H. Hardenstein, 702 Maches Bldg., New Orleans.
Maine: Portland, Nov. 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
Michigan: Lansing, Oct. 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
Minnesota: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.
Missouri: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.
Montana: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
Nebraska: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.
Nevada: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.
New Jersey: Trenton, Oct. 21-22. Sec., Dr. Alexander MacAlister, State House, Trenton.
New Mexico: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.
Oklahoma: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.
South Carolina: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
Texas: Galveston, Nov. 18-20. Sec., Dr. M. F. Bettencourt, Mart Texas.
Utah: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.
West Virginia: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.
Wyoming: Cheyenne, Oct. 6-8. Sec., Dr. J. D. Shingle, Cheyenne.

REGULATION OF HOSPITALS IN OHIO

Hospitals in Ohio are now subject to regulation by the commissioner of health in accordance with the following law which was passed by the last general assembly of Ohio. The new act amends, supplements and repeals sections of the General Code relative to classification and inspection of hospitals. It states:

Sect. 1.—That sections 1352, 6259 and 6262 be amended and supplementary section 1236-6 of the General Code be added to read as follows:

Sec. 1236-6. The Commissioner of Health shall have power to define and classify hospitals and dispensaries. Within thirty days after the taking effect of this act, and annually thereafter, every hospital and dispensary, public or private, shall register with, and report to, the State Department of Health, on forms furnished by the Commissioner of Health, such information as he may prescribe.

Sec. 1352. The Board of State Charities shall investigate by correspondence and inspection the system, condition and management of the public and private benevolent and correctional institutions of the state and county, and municipal jails, workhouses, infirmaries and children's homes as well as all institutions whether incorporated, private, or otherwise, which receive and care for children. Officers in charge of such institutions or responsible for the administration of public funds used for the relief and maintenance of the poor shall furnish the board or its secretary such information as it requires. The board may prescribe such forms of report and registration as it deems necessary. For the purpose of such investigation and to carry out the provisions of this chapter it shall employ such visitors as may be necessary, who shall, in addition to other duties, investigate the care and disposition of children made by institutions for receiving children, and by all institutions including within their objects the placing of children in private homes, and, when they deem it desirable, they shall visit such children in such homes, and report the result of such inspection to the board. The members of the board and such of its executive force as it shall designate may attend state and national conferences for the discussion of questions pertinent to their duties. The actual traveling expense so incurred by the members and such of its executive force as it shall designate shall be paid as provided by Section 1351 of the General Code.

Sec. 6259. The Commissioner of Health may grant licenses to maintain maternity hospitals or homes, lying-in hospitals, or places where women are received and cared for during parturition. An application therefor shall first be approved by the Board of Health of the city, village or township in which such maternity hospital or home, lying-in hospital, or place where women are received and cared for during par-

turition is to be maintained. A record of the license so issued shall be kept by the State Department of Health, which shall forthwith give notice to the Board of Health of the city, village or township in which the licensee resides, of the granting of such license and of the terms thereof.

Sec. 6262. The Commissioner of Health and the Boards of Health of cities, villages or townships shall annually, and may, at any time, visit and inspect, or designate a person to visit and inspect the system, condition and management of the institutions and premises so licensed.

Sec. 2. That original sections 1352, 6259 and 6262 and sections 6257 and 6258 of the General Code be, and the same are hereby repealed.

Passed March 11, 1919. Approved March 27, 1919.

Iowa June Examination

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 12-14, 1919. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 7 passed and 2 failed. Sixteen candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Loyola University	(1917)	83.7
University of Illinois	(1918)	87.2
State University of Iowa Coll. of Homeo. Med.	(1919)	82.8
University of Kansas School of Medicine	(1919)	80
St. Louis University	(1919)	87.2
Washington University Medical School	(1919)	87.8
University of Pennsylvania	(1918)	86.6
FAILED		
Hospital College of Medicine, Louisville	(1907)	67.2
Eclectic Medical College of the City of N. Y.	(1878)	*

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Hahnemann M. Col., Chicago (1886) Mich., (1916),	(1911)	Illinois
Bennett Medical College	(1914)	Illinois
Northwestern University	(1910)	Illinois
University of Illinois	(1915) Illinois, Nebraska, (1916)	Illinois
Medical School of Maine	(1904)	Maine
John A. Creighton Medical College	(1912, 2) (1915, 2)	Nebraska
University of Michigan Homeo. Med. School	(1917)	Michigan
St. Louis University	(1904)	Illinois
Western University	(1906)	Nebraska

* Did not complete examination.

June Missouri Examination

Dr. George H. Jones, secretary of Misouri State Board of Health, reports the oral and written examination held at St. Louis, June 17-19, 1919. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 93 candidates examined, 92 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Arkansas	(1901)	79.9
Howard University	(1916)	82.8
Loyola University (1918) 75.7, 77.1, 81.7.		
Rush Medical College	(1919)	82
University of Kansas School of Medicine (1919) 82.5, 84.5, 87.1, 88.2.		
Tulane University	(1911)	85.9
Johns Hopkins University	(1917) 87.1, (1919)	84.2
Barnes Medical College	(1904)	76.4
Beaumont Hospital Medical College	(1893)	81.5
St. Louis College of Physicians and Surgeons	(1918) 77.2.	84.6
St. Louis University School of Medicine (1905) 75, (1919) 80.1, 80.1, 80.2, 80.3, 81.1, 81.1, 81.1, 81.8, 82.1, 82.1, 82.1, 82.7, 83.1, 83.1, 83.1, 83.1, 84.1, 84.2, 84.7, 84.8T, 84.9, 85.1, 85.1, 85.1, 85.2, 85.3, 85.4, 85.6, 85.7, 86.1, 86.4, 86.5, 86.8, 86.8, 87.1, 87.1, 87.4, 88.5, 91.4.		
Washington University (1898) 76.1, (1917) 82.7, 83.7, (1919) 81.1, 82.1, 82.2, 82.6, 82.7, 83.1, 83.2, 83.6, 83.9, 84.4, 85, 85, 85.1, 85.1, 85.1, 85.2, 85.3, 85.5, 85.6, 85.6, 85.7, 86.1, 86.1, 86.7, 88.1, 88.7, 88.8, 90.1, 90.6.		
University of Nebraska	(1919)	82.1
Eclectic Medical Institute	(1883)	75
Kings Queens College of Physicians Dublin	(1884)	77.1
FAILED		
St. Louis College of Physicians and Surgeons	(1918)	69.1

Dr. Jones also reports that 42 candidates were licensed through reciprocity since Feb. 7, 1919. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Colorado	(1913)	Colorado
Howard University	(1905), (1915)	Maryland
Emory University	(1917)	Georgia
Chicago College of Medicine and Surgery	(1914)	Iowa
	(1916) Oklahoma, (1917)	Illinois
Hering Medical College, Chicago	(1912)	Kansas
Rush Medical College	(1917)	Illinois
University of Illinois	(1915), (1917)	Illinois
Medical College of Indiana	(1880)	Indiana
Drake University College of Medicine	(1910)	Iowa
Kansas Medical College	(1907)	Kansas
University of Kansas (1906), (1913), (1915, 2), (1916) (1918), Kansas.	(1917, 3),	
Louisville Medical College	(1888)	Indiana
University of Louisville	(1910)	Kentucky
Tulane University	(1917) Louisiana, (1918)	Mississippi
University of Maryland	(1908)	Maryland
Harvard University	(1916)	Nebraska
Mississippi Medical College	(1912)	Mississippi
Ensworth Medical College	(1909, 2)	Kansas
St. Louis University School of Medicine	(1910)	Illinois
University Medical College of Kansas City (1909), (1913)		Kansas
John A. Creighton Medical College	(1915)	Nebraska
University of Pennsylvania	(1908)	Penna.
Western Pensylvania Medical College	(1902)	Penna.
Lincoln Memorial University	(1911)	Tennessee
Meharry Medical College	(1913)	Kansas
Vanderbilt University	(1916)	Tennessee
University of Toronto	(1910)	N. Dakota

Book Notices

THE PERITONEUM. By Arthur E. Hertzler, M.D., F.A.C.S., Surgeon to the Halstead Hospital, Halstead, Kansas. Two Volumes. Cloth. Price, $10. Pp. 870, with 230 illustrations. St. Louis: C. V. Mosby Company, 1919.

This is a study of the peritoneum in health and in disease, from the standpoint of the clinician as distinguished from that of the pathologist, the physiologist or the anatomist, so that although the anatomy, physiology and pathology of the peritoneum are given careful attention, we are never allowed to forget that the chief value of the known facts concerning each lies in their clinical application. The first volume deals largely with the abstract problems of the peritoneum; perhaps the most intersting chapters are those from V to IX on wound healing (the formation of fibrous tissue), the nature and genesis of peritoneal adhesions, the prevention of adhesions, changes in the circulation, and inflammatory reaction of the peritoneum—interesting, perhaps, because in them is presented, in clinical language, a summary of what might be termed general pathology of the peritoneum, a subject with which most men are not particularly familiar and which, unfortunately, is not so widely discussed as are the subjects of peritoneal anatomy and, to a lesser extent, physiology. The second volume deals with the diseases of the peritoneum. The subjects are well arranged, the treatment is thorough, and the opinions expressed are, for the most part, orthodox. Interspersed here and there are interesting bits of advice gleaned from experience in the art of the practice rather than the science of medicine—hints which, properly digested and applied, may carry the physician around more than one sharp corner which otherwise might be extremely hard to negotiate. There is one sentence in this volume which every surgeon, particularly he who is inclined to operate with one eye on the clock, should read and ponder: "Quickness is not measured by the clock, but by the degree of traumatism inflicted." Appreciation of the thought expressed here might lengthen a surgeon's operating time, but it might also decrease postoperative morbidity among his patients.

COLLOID CHEMISTRY: AN INTRODUCTION, WITH SOME PRACTICAL APPLICATIONS. By Jerome Alexander, M.Sc., Chairman, Special Committee on Colloids, Division of Chemistry and Chemical Technology, National Research Council. Cloth. Price, $1 net. Pp. 90, with illustrations. New York: D. Van Nostrand Company, 1919.

In this little book—it contains only eighty-three pages of text—the author presents in a simple and terse manner the fundamental facts about colloids. It is delightful to read because it leads one through the rather complicated phases of colloidal chemistry, giving such a scientist as the physician an adequate view of the subject and yet obviating the more involved academic considerations. The important practical applications of this fascinating "twilight zone between physics and chemistry" increases one's interest in this study. The chapter on medicine happily contains no such unscientific statements or proprietary boosts as that of the English "Report on Colloid Chemistry" by the British Association for the Advancement of Science.

Social Medicine, Medical Economics and Miscellany

THE COST OF FOOD OF DIABETICS IN HOSPITAL*

ALICE N. DIKE
Assistant Professor of Cookery, Simmons College
Boston

This investigation was undertaken to find out whether diabetic patients cost the hospital more for their food than other patients, or whether the diabetics were right when on "fasting" days they remarked, "The hospital is making money on us."

Three hospitals, treating relatively large numbers of diabetics, were visted to find where a study could best be made. The New England Deaconess Hospital was selected because there a group of twelve or fourteen patients were in a separate cottage, though, unfortunately for the purposes of the study, about half as many more other patients were in the same house.

The cost of food for one week was estimated roughly, and the result was so startling that it was decided to figure the cost of another week more carefully. This was a matter of a good deal of difficulty because some of the food of the diabetics and most of the food of the other patients was sent over cooked from the main hospital, often in one container for both sets of patients. Some left over food was returned to the hospital and therefore had to be accounted for. The following results, while carefully determined by weighing whenever possible, are not strictly accurate in all cases, though with the possible exception of the meats they are, at least, as accurate as ordinary hospital estimates of food costs. All foods used were of the first quality, some even of fancy grade.

ESTIMATED COST OF EACH FOOD GROUP PER PATIENT PER DAY

Food Groups	Estimated Cost
Dairy products	$0.118
Groceries (except canned vegetables)	.063
Canned vegetables, 0.150; fresh vegetables, 0.158 (all vegetables)	.308
Fruits	.059
Fish, 0.084; Meat, 0.398 (all meat and fish)	.482
Miscellaneous (agar, whisky, liquid petrolatum, bran, saccharin)	.055
Total	$1.085

During the week June 23 to 30, 1919, for which the food was carefully estimated, there were nineteen different diabetic patients in the hospital, making an average of 13⅓ patients a day. Of these ten were severe cases, six moderately severe, and three, mild. Several patients fasted one or more days each; but as they were given broth, tea, coffee, and cocoa shells they were certainly costing the hospital as much as postoperative surgical or some medical cases.

At the same time that the study in diabetic food costs was being made, the hospital dietitian, Miss Ruth M. Wallace, estimated the cost of food of all nondiabetic patients. Results showed that the diabetics were costing 29 per cent. more than other patients. This should not be considered surprising when it is remembered that the diet requirements for diabetics in severe cases eliminate practically all the cheap carbohydrate foods, such as bread, breakfast cereals, and potatoes.

Since this study, although not claiming to be strictly accurate, was carried on at the same time that the estimate of the cost of nondiabetic patients was being made, and the two were done by two trained persons working together, it seems fair to conclude that the hospital diabetic is costing at least one fourth more for raw food materials than other patients. It is also clear to any one who has watched the preparation and serving of the food with its "thrice-washed" vegetables and weighed portions, that the labor cost is also high. For a complete comparison of the cost of the two groups it would be necessary to know the laboratory cost and the nursing cost of each.

The investigation brought out a few other points of interest: Of dairy products, eggs are by far the most expensive item, and it seems unwise to limit their use; milk, butter and cream (20 per cent.) are used in such small quantities that their cost is unimportant. For the strictest economy, butter substitutes may be used in place of other fats. Of groceries, aside from canned goods, coffee and gelatin are the most expensive; cocoa shells when purchased wholesale make a cheap drink. Almost no vegetables outside the 5 per cent.[1] group were used during the week; of these, tomatoes and spinach were the cheapest of the canned vegetables, and cabbage, lettuce, and cucumbers of the fresh vegetables. Fruits are used in small quantities, and even at present prices are an inconsiderable item. Some kinds of fish were cheaper than meat with us in Boston. Cod, haddock, and flounder may be used in place of chicken in cases in which the proportion of fat must be kept low. Of meats, bacon[2] and fowl, both of which were freely used and were of excellent quality, were expensive. During the week of the study, only carefully trimmed expensive kinds of meat were served, as had been the practice of the hospital. If carefully cooked cheap cuts of meat were served, and possibly some cheese, the cost of this large item would be reduced substantially. Broth is a very expensive item, especially if much chicken broth is used, as has been the custom. Only one squab was served, our preliminary study having shown this to be extravagant for all except patients in higher-priced private rooms.

In the group of miscellaneous items, some might possibly be classified as medicines, though all were served with the food. Agar-agar, which is used in the highly prized bran muffins, is expensive; but as it makes possible the one article which in any way resembles bread, and helps to give bulk to the diet, the outlay seems legitimate. The use of saccharin is unlimited but not encouraged; an average of only five one-fourth grain tablets per patient per day was used. The liquid petrolatum included here was used in cooking, and makes possible fried eggs and some other foods.

In spite of the fact that the diabetic diet must be relatively expensive, its cost may be substantially reduced by economy in the use of meats and vegetables. For the strictest economy, tea and cocoa shells should be used in place of coffee; gelatin and agar-agar used sparingly or omitted; butter substitutes used in place of cream and bacon; the cheapest vegetables, canned and fresh, selected; broth omitted, and the cheapest fish and meat used.

* From the Diabetic Clinic of the New England Deaconess Hospital.

1. The vegetables in the 5 per cent. group are: lettuce, cucumbers, spinach, rhubarb, endive, marrows, sorrel, sauerkraut, tomatoes, Brussels sprouts, watercress, sea kale, okra, cauliflower, egg plant, cabbage, asparagus, beet greens, dandelion greens, Swiss chard, celery, radishes, leeks, string beans, broccoli and peppers.

2. Nearly one-half the weight of the bacon was returned to the hospital and allowed for in figuring the cost.

REPORT OF CONNECTICUT SOCIAL INSURANCE COMMISSION

The Connecticut Commission on Public Welfare, appointed by the legislature in 1917, has submitted a report covering health insurance, hours of labor, minimum wage, old age and mothers' pensions, and occupational diseases. Its principal recommendation is the postponement of any further consideration of social insurance until the changes resulting from the war have been fully readjusted. The commission was impressed with the lack of interest in this subject in Connecticut. The state federation of labor in 1918 adopted resolutions favoring health insurance, old age pensions and a minimum wage, but the commission was unable to determine whether the vague expression of opinion implied support of compulsory insurance or not. All of the employers of labor who appeared before the commission agreed that compulsory health insurance at the present time would be unwise. The physicians of the state showed little interest in the subject. A questionnaire sent out by the commission to physicians elicited only about 30 per cent. of replies. To

the question, "What suggestions have you to make as to how the problem of adequate medical service can best be handled to serve the interest of the state, the physician and the sick of limited means?" only half of those who replied, or about 15 per cent. of the profession of the state, expressed any opinion. "The replies of not a few," says the report, "indicate that they did not look beyond their own immediate practice; a small number favored a better medical organization and suggested an extension of hospital service. Not more than a dozen took sides for or against compulsory health insurance." Physicians who appeared before the commission strongly deprecated any action on health insurance at the present time, declaring that it was a matter to which a great deal more thought and study should be given and that those of their number who were best informed were either in the military service or so much absorbed in duties incident to the war that they could not give the comission the benefit of their knowledge. The opponents of compulsory health insurance in Connecticut prepared for legislative consideration a substitute providing for an elaborate organization and administration of a department of health, on the ground that the enlargement of state health activities was less expensive, less socialistic and paternalistic and would be more effective than compulsory health insurance. The commission is of the opinion that either of these plans would prove more of a burden than the state would care to assume at present. The commission was impressed with some of the arguments in favor of compulsory health insurance for humane reasons, and is convinced that the state should do more to improve living conditions and prevent disease, but is not convinced that any of the measures thus far presented should be enacted. It feels that Connecticut should not be the first state to experiment with such a plan, but should gradually improve and extend its department of public health.

Regarding old age pensions, the commission after considering the arguments and objections pro and con did not regard the situation in Connecticut as sufficiently acute to justify the experiment. Regarding mothers' pensions, it is recommended that Connecticut might well follow the other thirty-six states which have enacted mothers' pension laws and either make provisions directly for such allowances at the cost of the state or confer on the towns the necessary power and authority to make them. The commission also believes that any disease arising out of or in the course of employment should be included within the provisions of the workmen's compensation law and should receive benefits the same as occupational injuries.

MARRIAGE AND THE UNFIT

Adolf Meyer, director of the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, in the July number of the *Canadian Journal of Mental Hygiene*, asks: "Why should we not, in the [marriage] ceremony itself, put the proper emphasis on the real issue of marriage? Why not replace the much discussed question of obedience by the question, put to both parties to the life contract: Do you want this man (or this woman) and no other to be the father (or mother) of your children?" He says, "not until some question as pointed as this is in all cases expected and squarely asked and squarely answered as a matter of general and frank concern as soon as marriage is considered, will the rank and file of people realize the needed obligation to deal fairly with the problem of health and parental responsibility before the knot is tied." Discussing the influence of heredity, Meyer reports the study of a community in which there were four interrelated family groups, represented by thirty-five children at the public school, fourteen of whom were defective, and says in his analysis that the defects were clearly traceable to the influence of parental taint and heredity. He is skeptical of the value of legal restriction on marrying of the unfit, such as was attempted in Wisconsin, and thinks the restraining force should come from education and social pressure. Persons with taint, as distinguished from those with true defects, should not be denied wedlock, but should be permitted to marry only on condition of mating themselves with individuals of better stock than their own.

Medicolegal

Privilege Is That of Patient and Not of Physician

(Markham v. Hipke (Wis.), 171 N. W. R. 300)

The Supreme Court of Wisconsin, in affirming an order adjudging the defendant, a physician, guilty of contempt, in refusing to answer in an adverse party examination, says that the action was for malpractice. The defendant was being examined adversely before trial, under Section 4096 of the Wisconsin statutes, and refused to disclose information received by him while treating the plaintiff as a patient, and which was necessary to enable him to prescribe, although the plaintiff expressly waived the statutory privilege of secrecy and he was ordered by the court to answer. For this refusal he was adjudged guilty of contempt, and appealed.

The sole question presented was whether the privilege granted by Section 4075 of the statutes is the privilege of the patient or of the physician. The supreme court thinks it is unquestionably the privilege of the patient. This was so held in *Boyle* v. *Association*, 95 Wis. 312, 70 N. W. 351, when the statute provided that no physician should be "compelled" to disclose such information. By Chapter 322 of the Session Laws of 1911, the section was amended by the substitution of the word "permitted" for the word "compelled," and by the addition of a provision allowing the information to be disclosed by the physician as a witness in his own behalf in a civil action for malpractice and in a criminal action therefor, when the patient or his legal representatives shall have first given evidence relating thereto. It was not entirely easy to construe the word "compelled" as giving the privilege to the patient, as may be seen by examination of the opinion in the Boyle case; but it is very easy so to construe the word "permitted." The latter word means practically the same as "allowed," which is the word used in Sections 4074 and 4076, protecting communications made to clergymen and attorneys, respectively, and the latter word has generally, if not uniformly, been construed as granting the privilege to the penitent or the client. Cases decided in this court since the last-named change was made inferentially, if not directly, sustain this view.

Privilege—Compensation for Sufferings

(Fishleigh v. Detroit United Ry. (Mich.), 171 N. W. R. 549)

The Supreme Court of Michigan, in affirming a judgment for $23,000 in favor of the plaintiff for damages for personal injuries, says that a physician who was called as a witness by the defendant was asked the question whether, without mentioning any names, he ever treated any immediate member of the plaintiff's family for diabetes. During the discussion that followed an objection, it was stated by the defendant's counsel that the question referred to a brother or a sister. The trial court sustained the objection on the ground that the evidence could not be received on the question of heredity, it not being the father or the mother that was referred to. But the supreme court need not consider the reason assigned by the lower court for its ruling, as the supreme court is satisfied that the physician was prohibited by Section 12550, Compiled Laws of Michigan of 1915, from testifying to what he learned in his professional capacity, while treating, and for the purpose of treating, the brother or sister. The privilege was the privilege of the patient, who was not a party to this suit; and there was no claim that the privilege had been waived by the patient.

It was insisted by the defendant that the verdict was excessive. But the supreme court does not think that it should treat it as excessive. When the cars collided the plaintiff was thrown forward, her knee or knees striking the seat in front; on the recoil she struck the back of the seat, which broke, either as the result of her body's striking against it or from others falling on it, and she was struck by the broken seat or a piece of it, an iron rod along with the wood, across the lower part of the back. Some months

afterward she was operated on, and a porition of the coccyx was removed, and later her right ovary was removed. From a robust, cheerful, vigorous woman, a wage-earner, weighing about 150 pounds, she had in twenty-two months' time wasted to a helpless cripple, weighing 98½ pounds, while her sufferings had been great and would so continue. In personal injury cases the amount of damages is not subject to exact mathematical calculation. Primarily the question is for the jury; and the supreme court cannot arbitrarily substitute its judgment for that of the triers of the facts. By the use of the mortality tables the plaintiff's loss of past and prospective earnings could be computed with reasonable accuracy. But there is no market place where pain is bought and sold. Compensation for sufferings must primarily be fixed by the jury with an honest judgment, based on the evidence as their guide. If grossly excessive, if the result of prejudice, or passion, or influence other than the evidence in the case, their determination cannot stand in the reviewing court. But that court must find something more tangible than a difference of opinion as to amount before it should vacate a verdict which has the approval of the trial court.

The Kind of Insanity That Is a Defense to Crime

(*People v. Morisawa* (*Calif.*), *179 Pac. R. 888*)

The Supreme Court of California, in affirming a conviction of murder in the first degree, says that the killing was admitted, and the defense was insanity. Complaint was made of the instructions given to the jury as to the test of insanity; but on this matter they were in accord with the well-settled law of California, being substantially to the effect that insanity interposed as a defense in a criminal prosecution means such a diseased and deranged condition of the mental faculties as to render the person incapable of distinguishing between right and wrong, in relation to the act with which he is charged; that in order to establish the defense, it must be proved by a preponderance of evidence that, at the time of committing the act, the party accused was laboring under such a defect of reason, from disease of the mind, temporary or otherwise, as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong; that if the defendant at the time he fired the shot at the deceased, if he did so fire, understood the nature of his act, and knew it was wrong and deserved punishment, he was legally responsible for his act, if committed as charged in the information; that the true test of insanity was whether at the time of committing the crime he was conscious that he was doing what he ought not to do; and that if the defendant was in that mental situation in which he did not appreciate the act he was committing, and he did not know it wrong to do it, that, of course, would be a legal defense. Counsel for the defendant contended that the instructions were erroneous in not including, in addition to the elements stated, the element of "power" on the part of the defendant "to adhere to the right and avoid the wrong," "the power to govern his body." But it is now so firmly settled in California as not to require discussion that an irresistible impulse on the part of a person to commit an act which he knows is wrong or unlawful does not constitute the insanity which is a legal defense.

Privilege Not Waived

(*Arizona Eastern R. Co. v. Matthews* (*Ariz.*), *180 Pac. R. 159*)

The Supreme Court of Arizona says that in this personal injury case the defendant offered as witnesses two physicians who rendered professional services to the plaintiff, and wanted to prove by them what they discovered or learned of his condition, insisting that he had raised the ban of secrecy because in a previous trial he had examined one of the witnesses in regard to the same subject-matter and had permitted the other to testify without objection. This offered testimony, on objection that it was confidential, was rejected; and the court does not consider that this ruling was erroneous. In *Arizona & New Mexico Ry. Co.* v. *Clark*, 235 U. S. 669, 35 Sup. Ct. 210, it is said that the statute contemplates that the patient may testify with reference to what was communicated by him to the physician, and in that event only it permits the physician to testify without the patient's consent. The act gives him the option of excluding the physician's evidence entirely by himself refraining from testifying voluntarily as to that respecting which alone their knowledge is equal, namely, what the patient told the physician with reference to the ailment. It did not appear that the plaintiff, in the former trial or in the present one, testified voluntarily as to what he "told the physician with reference to his ailment." It seems, under the Arizona statute and the construction given it in the Clark case, that the patient can object to the physician's testifying as to what he may have learned in his professional capacity unless the patient has himself "testified to the communications he made to the physician." It not appearing that the plaintiff testified to any communication made by him to the physicians, he did not waive his right to object to their testifying at the second trial, even though they did at some previous trial testify as to knowledge obtained by personal examination.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Lar., Cleveland, O., Oct. 16-18.
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.
American Public Health Assn., New Orleans, Oct. 27-30.
Assn. of Military Surgeons of the U. S., St. Louis, Oct. 13-15.
Colorado State Medical Society, Denver, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Medical Assn. of the Southwest, Oklahoma City, Oct. 6-8.
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.
Southern Medical Association, Asheville, N. C., Nov. 12-13.
Vermont State Medical Society, Burlington, Oct. 9-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

Sept. 1, 1919, **49**, No. 4

Quantitative Study of Effects Produced by Salts of Sodium, Potassium, Rubidium and Calcium on Motor Nerve of Frog. E. Greisheimer, Chicago.—p. 497.
Practicability of Feeding a Scientifically Balanced Ration in Army Camps. R. J. Anderson, U. S. Army.—p. 523.
Average Food Consumption in Training Camps of U. S. Army. J. R. Murlin and F. M. Hildebrandt, U. S. Army.—p. 531.
Variations in Strength and in Consumption of Food by Recruits and Seasoned Troops. P. E. Howe, C. C. Mason and S. C. Dinsmore, U. S. Army.—p. 557.
Acid Base Balance of Army Rations. N. R. Blatherwick, U. S. Army.—p. 567.
Dried Vegetables for Army Use. S. C. Prescott, U. S. Army.—p. 573.
American Military Hospital Dietaries. R. G. Hoskins, U. S. Army.—p. 578.

Archives of Internal Medicine, Chicago

Sept. 15, 1919, **24**, No. 3

*Studies on Epinephrin. I. Effects of Injection of Epinephrin in Soldiers with "Irritable Heart." J. T. Wearn, Charlotte, N. C., and C. C. Sturgis, Pendleton, Ore.—p. 247.
*Studies on Epinephrin. II. Effects of Epinephrin on Basal Metabolism in Soldiers with "Irritable Heart," in Hyperthyroidism and in Normal Men. E. H. Tompkins, Cambridge, Mass., C. C. Sturgis, Pendleton, Ore., and J. T. Wearn, Charlotte, N. C.—p. 269.
*Studies on Epinephrin. III. Effect of Epinephrin on the Electrocardiograms of Patients with "Irritable Heart." H. D. Clough, Providence, R. I.—p. 284.
*Experimental Endothelial Leukocytosis in Guinea-Pigs. F. A. McJunkin and A. G. Charlton, Milwaukee.—p. 295.
Necropsy Studies at a Hospital Center. M. Barron, St. Paul.—p. 302.
Possibilities of Physical Development in Cases of Effort Syndrome by Means of Graded Exercises. B. Smith, Los Angeles.—p. 321.
Experimental Emphysema. S. R. Kelman, Iowa City.—p. 332.
*Preliminary Survey of Thyroid Among Twenty-One Thousand One Hundred and Eighty-Two Recruits at Camp Lewis, Washington. W. J. Kerr, San Francisco.—p. 347.

Effect of Epinephrin on "Irritable Hearts."—The reaction to the intramuscular injection of a small dose (0.5 c.c. of a 1:1,000 solution) of epinephrin was studied by Wearn and Sturgis in normal soldiers, and in a group of soldiers showing symptoms of so-called "irritable heart." Of twenty-six normal soldiers, who had gone through the grill of army training in its severest form for fourteen months, not one gave a positive reaction as judged by observation of pulse rate, blood pressure, objective signs or subjective symptoms. Seventy-three patients with symptoms of "irritable heart" were studied. Their symptoms were of long duration and for the most part antedated their entrance into military life. Of this group about 60 per cent. gave a reaction which definitely indicated a hypersensitiveness to epinephrin. Epinephrin has a selective action on the sympathetic autonomic nervous system, therefore, it may be assumed that the symptoms and signs induced in the positive cases are the result of a hypersensitive sympathetic autonomic nervous system. A careful clinical analysis, however, of the patients showing positive and negative reactions has revealed no essential clinical differences between the two groups. Although all efforts were made to improve the physical condition of these men, not one of those who gave a positive reaction, and only three who gave negative reactions were able to go to full duty.

Effect of Epinephrin on Basal Metabolism.—Tompkins and his associates found that intramuscular injection of epinephrin causes an increase in total gaseous metabolism in normal men, patients with "irritable heart" and in hyperthyroidism. The increase in metabolism is greater in cases showing a "positive" reaction to the epinephrin than in those showing no characteristic reaction, and it is parallel to the pulse, blood pressure and symptomatic changes. There is an increase in the minute volume of air breathed under the effects of epinephrin, and of either respiratory rate or depth, or both. After intramuscular injection of epinephrin, there is very frequently an elevation of respiratory quotient. The maximum of this elevation ordinarily precedes that of the metabolic increase. The increase in metabolism is due to some factor other than the excitement attendant on injection or the stimulation to heart and respiratory muscles resulting from injection. The increase in metabolism may be due to increased muscular tonus or to hyperglycemia. It may be that these factors are only partial expressions of a general indirect stimulus to the metabolism from the epinephrin by its action on some system capable of direct metabolic activation. As epinephrin is a stimulant to the sympathetic autonomic nervous system, the differences in reaction and metabolic response in the negative and positive cases are probably due to differences in that system.

Effect of Epinephrin on Electrocardiogram of "Irritable Heart."—The effect of epinephrin was observed by Clough in normal individuals and in a number of patients with the symptoms of "irritable heart." All of the latter were hypersensitive to epinephrin in the sense that they gave a much more pronounced reaction to a small dose of the drug than do normal individuals. In some cases gross abnormalities of the dectrocardiographic record were observed. The most important deviations from the normal were changes in conduction (delayed conduction, partial heart block) and the production of ventricular extrasystoles. Special studies were made of the effect of epinephrin on the conduction time, length of systole and height of the T wave in twelve epinephrin hypersensitive patients with "irritable heart" and in twelve normal men. No changes were found in the conduction time or the length of systole in either type. In both at the height of the reaction there was a decrease in the height of the T wave. An attempt was made to correlate the symptoms complained of by the patients with "irritable heart" at the height of the reaction with abnormalities of the electrocardiogram, but no definite association could be made.

Experimental Leukocytosis.—Although there are few endothelial leukocytes normally present in the peripheral blood as compared with the neutrophils or lymphocytes, the percentage may be increased regularly by experimental procedures as was shown by the authors. It appears after an examination of the usual textbooks and a cursory examination of the literature that a characteristic increase in number in human blood of this variety of leukocyte has not been noted in generalized miliary or other forms of tuberculosis. Such a leukocytosis was noted by McJunkin and Charlton in the later stages of the usual experimental tuberculosis of guinea-pigs.

Thyroid Enlargement in Recruits.—A survey of 21,182 troops coming to Camp Lewis, Washington, from eleven states, comprising an area of approximately one third of the United States, showed a high incidence of simple goiter, in Washington, Oregon, California and Nevada. Twenty-one per cent. of all troops examined showed a definite enlargement of the thyroid. Of these 27 per cent. showed a large or moderately enlarged thyroid, and 73 per cent. were classified as "small." The enlargement of the thyroid was noted as diffuse in 38 per cent. of the cases; isthmus, in 52 per cent., right lobe, in 5 per cent., and left lobe in 4 per cent. Such physical signs as tremor, tachycardia, vasomotor instability of the hands and curved nails were noted, and were found in a larger percentage of men with thyroid enlargement than in those without demonstrable changes in the thyroid.

Boston Medical and Surgical Journal

Sept. 18, 1919, **181**, No. 12

Administration of Arsphenamin. A. S. Hyman, Boston.—p. 353.
Torsion of Omentum: Report of Case. E. H. Risley, Boston.—p. 362.
Surgical Treatment to Prevent and Minimize Permanent Disabilities. F. D. Donoghue, Boston.—p. 364.
*Case of Associated Pains in Knee and Penis Due to Obturator Hernia. H. W. Marshall, Boston.—p. 367.
*Gaseous Exchange with Unpracticed Subjects and Two Respiratory Apparatuses Employing Three Breathing Appliances. M. F. Hendby, T. M. Carpenter and L. E. Emmes, Boston.—p. 368. Conc'n.

Associated Pains in Knee and Penis.—Marshall cites the case of a man who suffered from pain along the course and distribution of the internal pudic and obturator nerves. A diognosis was made of reducible obturator hernia which pulled or pressed at times on the obturator and internal pudic nerves of the left side. Relief is obtained when it does not descend into the hernial sac.

Gaseous Exchange with Unpracticed Subjects.—The respiratory exchange of seventeen untrained medical students was measured by Hendby, Carpenter and Emmes with each of three breathing appliances, namely, mouthpiece, nosepieces and mask, on two different respiration apparatus, the Benedict portable apparatus and a respiratory valve apparatus. The results show that there are no marked differences in the respiratory exchange when the breathing appliance alone is considered. The breathing is slightly more normal with the mask. The oxygen consumption is practically the same regardless of the breathing appliance or respiration apparatus used. The general trend of the oxygen consumption for twelve periods, considered from the standpoint of time, indicates that there is practically no difference from period to period between 8:30 a. m. and 12:30 p. m. The general tendency for the metabolism to remain stationary is confirmed by the course of the pulse rate. There is a slight tendency for the carbon dioxid elimination to be higher with the portable respiration apparatus than with the respiratory valve apparatus. This is due primarily to a tendency to a slightly greater ventilation of the lungs. The average respiratory quotient with the portable apparatus is slightly higher than that with the respiratory value apparatus, and the lowest with the mask as compared with the mouthpiece and nosepieces. The general level of the respiratory quotient throughout twelve periods of measurement from 8:30 a. m. to 12:30 p. m. remains practically constant. When the measurement of the oxygen consumption alone is desired, the authors found the Benedict portable respiration apparatus the best apparatus for short-period measurement. When more data are desired, such as total ventilation, respiratory quotient, and mechanics of breathing, the respiratory valve apparatus is better. For continued experimenting from period to period without interruption, the mask is preferable to the other two breathing appliances. The detailed data on these experiments are given in full.

Bulletin of Johns Hopkins Hospital, Baltimore

September, 1919, **30**, 343

*Insusceptibility of Man to Inoculation with Blood from Measles Patients. A. W. Sellards, U. S. Army.—p. 257.
Rôle of Roentgen Ray in Diagnosis of Longstanding Renal Tuberculosis. J. A. C. Colston and C. A. Waters, Baltimore.—p. 268.
Reminiscences of Two Epochs: Esthesia and Asepsis. S. Smith, New York.—p. 273.
Effort Syndrome. E. W. Bridgman, Baltimore.—p. 279.

Insusceptibility of Man to Inoculation with Blood from Measles Patients.—Sellards reports the results of the study in human volunteers of the question of prophylactic inoculation against measles. For these inoculations, blood was taken from a moderately severe case of measles twelve hours after the first appearance of the rash. At this time the Koplik spots had already disappeared, the eruption was profuse over the face, back and chest, less intense over the abdomen and only a few scattered spots had appeared on the thighs. Immediately after collection, one portion of the blood was defibrinated and centrifuged for the collection of serum. Part of this serum was mixed with an equal volume of fresh serum obtained from a typical case of measles ten days after the temperature had returned to normal. Another portion of the original serum was diluted with nine parts of physiologic sodium chlorid solution; one portion of the diluted serum was kept at room temperature for a control and the remainder was heavily inoculated with *B. prodigiosus* and passed through a Berkefeld filter (so-called N). Three susceptibles and one immune who had had measles twenty-eight years previously were injected with diluted serum, filtered serum, a mixture of equal parts of patient's and convalescent's serums and defibrinated patient's blood, respectively. None of these four individuals developed any symptoms of measles. Sellards says that while the delay of one hour before injecting this serum and also the absence of red cells might be regarded as factors contributing toward the negative result, it would appear from previous work that the blood retains its infectivity in vitro for at least a day. After an interval of one month, a second intravenous injection was given the immune consisting of serum collected from a patient fifteen hours after the appearance of the rash. No symptoms of any kind resulted.

The remainder of the work with susceptible individuals was restricted to an attempt to transmit measles by the injection of patient's blood. Defibrinated blood was injected subcutaneously into two men. Cultures of patient's blood in ascitic broth were inoculated in two other men. None of these four subjects developed measles; neither did any symptoms appear that could definitely be attributed to the injections. After an interval of thirty-five days one of the men injected with defibrinated blood and another injected with blood incubated in broth were reinoculated by smearing the mucous membranes of the eyes, nose and throat with freshly excised morbillous skin lesions. No definite symptoms developed. Two susceptibles were inoculated on two successive days with blood taken before and after the appearance of the eruption. Control inoculations were made simultaneously into two immunes. Blood for these injections was secured from two patients; specimens were obtained from one patient thirty hours and again six hours before the appearance of the rash and from the other six hours before and eighteen hours after the rash appeared. None of these four subjects developed any symptoms of measles. Of the two susceptibles selected for these injections, one gave unusually good evidence that he had never contracted measles. Two susceptibles and two immunes, one of whom had not previously received any injections were inoculated on the mucous membranes of the eyes and nose with the lacrymal secretions and also on the nose and throat with the nasal secretions of a patient, on the day of the preeruptive rise in temperature, i. e., twelve days after exposure and four days before the eruption. A similar inoculation was made on the day before the eruption, i. e., on the fifteenth day after exposure. On this occasion, in addition to duplicating the previous inoculations, the buccal secretions were thoroughly rubbed over the mucous membranes of the throat and mouth of the four subjects. On both occasions the four subjects were in the same room with the patient. One more susceptible was inoculated intravenously with measles blood taken within from six to ten hours after the appearance of the rash. The blood was injected immediately after withdrawal before it had time to clot. Neither the intravenous injection of blood nor the inoculations of the secretion produced, in these five subjects, any respiratory symptoms or any rash. Only insignificant fluctuations occurred in the temperature and in the leukocyte count.

Sellards points out that in drawing conclusions concerning these inoculations of blood and mucous secretions in these susceptible men, two unknown factors are to be determined, namely, (1) whether the individuals in question at the conclusion of the inoculations were immune and if so (2) whether the immunity was conferred by the injection of blood or acquired possibly through a previous attack of measles. The results of the susceptibility tests leave little doubt that these men were immune. Sellards emphasizes further that conclusive demonstration of the noninfectivity of measles blood on injection into a susceptible individual would still fail to prove the absence of the virus of the disease in the circulating blood. It is very doubtful, for example, whether a susceptible human being would be infected by the injection of a moderate amount of blood of a typhoid patient taken during the stage of bacteremia. It is a theoretical possibility that the blood of a measles patient might reproduce the disease when inoculated on the mucous membranes though not on injection into the body tissues. Sellards points out, further, that there is a striking discrepancy between the negative results following these inoculations of measles blood and the successful experiments previously reported under essentially similar conditions. A careful examination of the data recorded by Sellards has failed to suggest any correlation of these diametrically opposite results.

Canadian Medical Association Journal, Toronto

September, 1919, **9**, No. 9

Laënnec: One Hundred Years After. W. S. Thayer, Baltimore.—p. 769.
Sanitation In War. J. W. S. McCullough.—p. 783.
Physical Census. J. G. Adami, Montreal.—p. 794.
Provincial Ministry of Health. W. F. Roberts, St. John, N. B.—p. 817.
Antituberculosis Leagues in the Districts of Sanitary Inspection. E. M. Savard, Quebec.—p. 823.
Tuberculosis Hospitals and Dispensaries. H. A. Farris, St. John, N. B.—p. 830.
Some Danger Signals in Cardiovascular Disease. J. Third, Kingston, Ont.—p. 835.

Indiana State Medical Association Journal, Fort Wayne

Sept. 15, 1919, **12**, No. 9

*War Wounds of Abdomen. H. O. Bruggeman, Ft. Wayne.—p. 225.
*Case of Appendiceal Abscess Discharging Through Vagina. M. F. Porter, Ft. Wayne.—p. 228.
Foreign Bodies In Bladder and Cystoscope as an Aid in Their Removal. W. N. Wishard, Indianapolis.—p. 229.
Lobectomy vs. Ligation of Vessels in Toxic Goiter. T. B. Noble, Indianapolis.—p. 230.

War Wounds of Abdomen.—Bruggeman says that taken as a whole the treatment of gunshot wounds of the abdomen was about the most unsatisfactory work of any phase of war surgery. The responsibility was great and the mortality high. It had none of the red fire features of chest surgery, and it lacked the many novel experiences that accompanied the operative treatment of battle injuries of the brain.

Appendiceal Abscess.—Porter's patient was only 9 years of age, she had had influenza followed by pain all over the abdomen, finally localizing in the left side of the pelvis. About a week later there was a copious discharge of pus from the vagina, with relief of symptoms. She remained well for about five months when she began to complain of gastric pain, pain in the right lower quadrant and vomiting. A diagnosis of appendicitis was made, operation being performed thirty-six hours after the onset of this attack. Adhesions were found involving the cecum, ileum and broad ligament, and extending down into the pelvis. During the separation of the adhesions, several abscess cavities were opened. The appendix was found perforated near the cecal end. The patient's progress was satisfactory for about eight days, when she began to complain of back pain and frequent desire to empty the rectum and bladder. The drainage from

the wound had been quite copious until within a few hours of the onset of these symptoms. Rectal examination disclosed a very tender but nonfluctuating mass in the pelvis The lower end of the original wound was opened and the finger introduced into the pelvis without opening the general peritoneal cavity and without discovering any pus. A drain was placed and a dressing applied. There was a copious serous discharge for two or three days, which finally subsided and the drain was removed. Following this last operation, there was considerable mucopurulent discharge from both the vagina and rectum. The rectal discharge continued for a few days and then stopped. The vaginal discharge diminished but is still present and amounts to a mild leukorrhea. Immediate relief followed the operation, and it has continued.

Journal of Biological Chemistry, Baltimore

August, 1919, **39**, No. 1

*Biochemistry of Bacillus Acetoethylicum with Reference to Formation of Acetone. J. H. Northrop, L. H. Ashe and J. K. Senior, New York.—p. 1.
Determination of Beta Hydroxybutyric Acid, Acetoacetic Acid, and Acetone in Blood. D. D. Van Slyke and R. Fitz, New York.—p. 23.
*Studies of Gastric Residuum. III. Amino Acid Nitrogen. R. Cessna and C. C. Fowler, Ames, Iowa.—p. 25.
Nutritive Factors in Plant Tissues. II. Distribution of Water-Soluble Vitamin. T. B. Osborne and L. B. Mendel, New Haven, Conn. —p. 29.
*Preparation of Protein Free from Water-Soluble Vitamin. T. B. Osborne, A. J. Wakeman and E. L. Ferry, New Haven, Conn. —p. 35.
*Nonprotein Nitrogenous Constituents of Human Milk. W. Denis, F. B. Talbot and A. S. Minot, Boston.—p. 47.
*Efficiency of Oat Protein in Adult Human Nutrition. H. C. Sherman, J. C. Winters and V. Phillips, New York.—p. 53.
*Vitamin Studies. IV. Antineuritic Properties of Certain Physiologic Stimulants. R. A. Dutcher, St. Paul.—p. 63.
Epichitosamin and Epichitose. P. A. Levene, New York.—p. 69.
Cytidine Phosphoric Acid. P. A. Levene, New York.—p. 77.
Lipoids of Heart Muscle. P. A. Levene and S. Komatsu, New York. —p. 83.
Cephalin. VI. Bearing of Cuorin on Structure of Cephalin. P. A. Levene and S. Komatsu, New York.—p. 91.
d-Chondrosamino-and d-Chitosaminoheptonic Acids. P. A. Levene and I. Matsuo, New York.—p. 105.
*Lewis-Benedict Method of Blood Sugar Determination. S. Morgulis and H. M. Jahr, Omaha.—p. 119.
*Isolation of Iodin Compound which Occurs in Thyroid. E. C. Kendall, Rochester, Minn.—p. 125.
Studies on Behavior of Inulin in Animal Body. II. Inulin in Alimentary Canal. R. Okey, Urbana, Ill.—p. 149.
Hemato-Respiratory Functions. H. W. Haggard and Y. Henderson, New Haven, Conn.—p. 163.

Biochemistry of Bacillus Acetoethylicum.—Several microorganisms have been described as forming more or less acetone, and at least two have been used on a commercial scale. Of these organisms, *Bacillus macerans* was used by Northrup and his associates in this work, inasmuch as it forms ethyl alcohol as a by-product. Since it was not possible to obtain a culture of the organism in this country, the bacillus was isolated from potatoes. The optimum conditions of temperature, reaction of the medium, physiologic state of the culture, size of inoculation, air supply and nitrogen supply have been determined by the authors and are described.

Studies of Gastric Residuum.—The average amino-acid nitrogen found by Cessna and Fowler in twenty-six normal cases of gastric residuum was 36.4 mg. per hundred cubic centimeters. The amount of amino-acid nitrogen apparently bears no relationship to acidity or pepsin or trypsin content. In view of these data the authors believe that the high amino nitrogen value of the contents of the fasting stomach appears not to be significant in gastric carcinoma.

Preparation of Protein Free from Water Soluble Vitamin.—From the experiments described in this paper it is evident that the commerical cornstarch, which the authors used, contained no appreciable quantity of the water soluble vitamin; for even though this starch constituted about 50 per cent. of the diets the rats died after a short period. That starch furnishes carbohydrate in a form adequate for the normal nutrition of rats has been demonstrated by many experiments made by the authors, which fact, in connection with the ease with which the commercial starch, practically free from water soluble vitamin, can be obtained, makes this an excellent source of carbohydrate for vitamin free diets.

Nonprotein Nitrogenous Constituents of Human Milk.—The authors report the results of a series of observations made on the milk of normal women in which they made determinations of total nonprotein nitrogen, urea, uric acid, creatin and creatinin, in an effort to obtain data regarding the relative quantities of these substances present under normal conditions. It is apparent that while there are slight variations in the amount of the various extractive substances present in samples of milk drawn at different periods throughout the day, these variations are relatively small, and could not be considered of importance in the interpretation of results. There is also no apparent uniformity in the slight variations noted, in some cases for instance the highest value for urea was found in the samples drawn during the forenoon, in others a maximum was attained in the late afternoon or evening. The results of the examination of seventy-one samples of milk may be summarized as follows:

	Minimum, mg.	Maximum, mg.
Total nonprotein nitrogen	20.0	37.0
Urea nitrogen	8.3	16.0
Amino nitrogen	3.0	8.9
Preformed creatinin	1.0	1.6
Creatin	1.9	3.9
Uric acid	1.7	4.4

Oat Protein in Human Nutrition.—Sherman's experiments indicate that for the purposes of practical dietetics equal weights of oat and maize proteins may be regarded as essentially equal in value, and that even the minimum amount of milk which can possibly be regarded as permissible in the light of our present knowledge of nutrition, will apparently so supplement the proteins of either the maize or oat kernel as to make them function with an efficiency comparable with that of the average protein of mixed diet in the maintenance metabolism of man.

Vitamin Studies.—The substances used by Dutcher, i. e., thyroxin, desiccated thyroid, pilocarpin and tethelin, apparently produced definite relief in certain acute cases of avian polyneuritis. However, in none of the cases described did he obtain the almost immediate response that is usually observed when vitamin preparations are fed. Pigeons have been relieved of the paralytic symptoms, in avian polyneurisis, by means of thyroxin, desiccated thyroid gland, pilocarpin hydrochlorid and tethelin. The work is being continued along the lines indicated by the above observations.

Blood Sugar Determination.—Reviewing all their data Morgulis and Jahr are convinced that the presence of creatinin increases the blood sugar value as determined by the Lewis-Benedict method. It is true that concentrations less than 2 mg. of creatinin per hundred cubic centimeter have no effect on the accuracy of the reaction, but with greater concentrations the error in the sugar analysis increases progressively. It is probable, therefore, that the Lewis-Benedict method is applicable to normal bloods where the creatinin concentration is from 1 to 3 mg. per hundred cubic centimeter, but under pathologic conditions when the creatinin level may rise to 10 to 40 mg. per hundred cubic centimeters the sugar analysis by the Lewis-Benedict method loses its value as a quantitative procedure.

Iodin Compound in Thyroid.—Kendall's paper consists mainly of detailed descriptions of methods used to isolate this iodin compound—thyroxin—from the compound.

September, 1919, **39**, No. 2

Importance of Accurate and Quantitative Measurements in Experimental Work on Nutrition and Accessory Food Factors. H. Chick and E. M. Hume, London.—p. 203.
Maintenance and Reproduction with Grains and Grain Products as the Sole Dietary. E. B. Hart and H. Steenbock, Madison, Wis.—p. 209.
Vitamin Requirements of Certain Yeasts. F. M. Bachman, Madison, Wis.—p. 235.
Determination of Ammonia in Blood. O. Folin, Boston.—p. 259.
Studies of Acidosis. XVI. Determinations of Bicarbonate in Blood Plasma of Different Species by Titration and Carbon Dioxid Capacity Methods. E. Stillman, New York.—p. 261.
Concentration of Ammonia in Blood. Comparison with Concentration of Ammonia in Different Secretions and Tissues, Especially Muscle Tissue. K. L. Gad-Andersen, Copenhagen, Denmark.—p. 267.
*Action of Ptyalin. H. McGuigan, Chicago.—p. 273.
*Micro Determination of Nitrogen by Direct Nesslerization and of Total Solids, in Drop Quantities of Human Blood. A. W. Peters, Omaha. —p. 285.

Relation of Plant Carotinoids to Growth, Fecundity and Reproduction of Fowls. L. S. Palmer and H. L. Kempster, Columbia, Mo.—p. 299.
Physiologic Relation between Fecundity and Natural Yellow Pigmentation of Certain Breeds of Fowls. L. S. Palmer and H. L. Kempster, Columbia, Mo.—p. 313.
Influence of Specific Feeds and Certain Pigments on Color of Egg Yolk and Body Fat of Fowls. L. S. Palmer and H. L. Kempster, Columbia, Mo.—p. 331.
Effect of High Protein Acid-Forming Diets on Excretion of Ammonia by Rabbits. J. F. Lyman and B. Raymund, Columbus, Ohio.—p. 339.
Acid Fermentation of Xylose. E. B. Fred, W. H. Peterson and A. Davenport, Madison, Wis.—p. 347.
Action of Salts on Metabolism of Nerves. L. K. Riggs, Chicago.—p. 387.
Alleged Relation of Catalase to Animal Oxidations. R. L. Stehle, Philadelphia.—p. 403.

Action of Ptyalin.—Evidence is presented by McGuigan in favor of the view that ptyalin unites with the starch during digestion, and exerts a force which causes hydrolysis.

Nitrogen and Solids in Blood.—A method is described by Peters for the determination of total and nonprotein nitrogen and of total solids in from fifteen to thirty drop quantities of human blood so that frequent or serial determinations at short intervals can be made conveniently on the same individual. The use of a single fixed color standard has been developed for the measurements of the Nesslerized nitrogen solutions. The conditions of accuracy have been tested and the quantitative evaluation of the colorimetric results has been adjusted to variations of analytical conditions so that the variability and certainty of the results lie within a few thousandths of a milligram of nitrogen. A procedure for determining the dry weight of a few drops of blood is also described which obviates incomplete or unequal drying.

Journal of Cutaneous Diseases, Chicago

July, 1919, **37**, No. 7

*Etiology of Molluscum Contagiosum. Preliminary Report of Experimental Study. U. J. Wile and L. B. Kingery, Ann Arbor.—p. 431.
*Serologic Reactions in Case of Rhinoscleroma. C. H. Bailey, New York.—p. 447.
Skin Diseases at Army Camp. M. B. Hutchins, Atlanta.—p. 456.

Etiology of Molluscum Contagiosum.—Wile and Kingery believe that molluscum contagiosum can be produced experimentally in the human being from the sterile filtrate of typical lesions. The incubation period of experimental lesions probably depends on a number of conditions, among which surely individual predisposition or suspectibility must play a rôle. In the authors' first case an incubation of fourteen days occurred; in the second case, in which injection was made at the same time and under like conditions, lesions clinically diagnosable appeared in about twenty-five days, but were microscopically established only fifty-five days after infection. The authors believe that the so-called molluscum bodies require a longer time for their development than is required for the development of macroscopic lesions; that is to say, that the molluscum body represents a degeneration stage in the evolution of the mulluscum tumor, not coincident in time with its early development. It is submitted that molluscum contagiosum is caused by a filtrable virus.

Serologic Reactions of Rhinoscleroma.—The blood serum from a case of rhinoscleroma studied by Bailey contained complement-fixing antibodies for its own and one other strain of rhinoscleroma bacillus in very large and similar amounts. Power to fix complement with other species of gram-negative encapsulated bacilli from the respiratory tract, including two strains of *Bacillus lactis-aerogenes* was high, but less high than with the rhinoscleroma bacillus. Complement fixation with two strains of *B. lactis-aerogenes* from the intestinal tract was practically absent. Coincident with clinical improvement under roentgen-ray and radium treatment, there was a diminution in the complement fixing power. The rhinoscleroma bacillus, because of its cultural characteristics and immunologic reaction, recorded here and by other authors, would seem to be as much entitled to recognition as a species distinct from, but closely related to, other members of the group as are others now generally so recognized; and the results of the complement fixation tests favor the view that the rhinoscleroma bacillus is the etiologic factor in this disease.

August, 1919, **37**, No. 8

*Epidermophyton Infection. C. J. White, Cambridge, Mass.—p. 501.
Transverse Hyperpigmented Lines of Thorax and Abdomen of a Negro Infant. F. D. Weidman, Philadelphia.—p. 517.
*Dermatitis Exfoliativa; Report of Fatal Case. J. B. Ludy, L. Cogswell and E. L. Hunt, Camp Hancock, Ga.—p. 524.

Epidermophyton Infection.—According to White's observations, the epidermophyton is capable of infecting singly the thighs and adjacent skin, the toes and feet, the fingers and hands, the axillae, the bends of the elbows and of the knees, the flat surfaces of the trunk and extremities and the scalp, or conjointly any combination of the above regions. White describes seriatim the disease as he has observed it in each of these various regions (192 cases in ten years) and the treatment which he found to be most effective in each group.

Dermatitis Exfoliativa.—The case cited by Ludy and others presents a diffuse generalized desquamative skin inflammation associated with general hyperplasia of the lymphatic glands and with melanosis, complicated by acute diffuse nephritis, passive congestion and edema of the lungs with pneumonitis, acute peribronchial and focal infection; macular hyperemic eruptive lesions of the small intestine; passive congestion and parenchymatous degeneration of the liver; passive congestion of the spleen; passive congestion and cell exhaustion of the suprarenals.

Journal of Laboratory and Clinical Medicine, St. Louis

February, 1919, **4**, No. 5

Lesions of Respiratory and Gastrointestinal Tracts Produced by Mustard Gas (Dichlorethyl-Sulphid). A. S. Warthin, Ann Arbor.—p. 229.
General Pathology of Mustard Gas (Dichlorethyl-Sulphid) Poisoning. A. S. Warthin and C. V. Weller, Ann Arbor.—p. 265.

March, 1919, **4**, No. 6

Diagnosis of Acidosis. Review and Criticism of Methods at Present in Use. J. J. R. MacLeod, Toronto.—p. 315.
Epidemic of Influenza at Camp Devens, Mass. P. G. Woolley, Cincinnati.—p. 330.
Nature of Lymphocytosis of Acute Infectious Diseases. W. E. Sanders, Des Moines, Iowa.—p. 344.
Notes Concerning Hemolytic Streptococcus Infection. M. S. Fleisher, and C. D. Hamilton, U. S. Army.—p. 347.

May, 1919, **4**, No. 8

Fragility of Erythrocytes. H. Z. Giffin and A. H. Sanford, Rochester, Minn.—p. 465.
Studies in Plasmogenesis. A. L. Herrera, Mexico City, Mex.—p. 479.
Types of Pneumococcus in Lobar Pneumonia. R. Richardson, Philadelphia.—p. 484.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

July, 1919, **50**, No. 1

*Phenomena of Neurobiotaxis as Demonstrated by the Position of the Motor Nuclei of the Oblongata. C. U. Ariens Kappers, Amsterdam, Holland.—p. 1.
*Essential Myoclonia. L. P. Clark, New York.—p. 17.
Uniform Statistical Reports of Insanity now Assured. Official Classification of Psychoses. J. V. May, Boston.—p. 42.

Phenomena of Neurobiotaxis.—A study of the displacements of the nerve cells in the direction of the place of stimulation and a comparison with the other phylogenetic changes in the oblongata and midbrain, have given Kappers the conviction that these shiftings are caused by the difference in stimulation, i. e., the difference of development to their corresponding posterior roots and the difference in the sensory, optic, vestibular, acoustic, and other reflexes that influence other functions. At the same time changes in the muscular system complicate these factors. The nuclei appear to shift in the direction of the place whence the majority of the stimuli come to them.

Essential Myoclonia.—Aside from myoclonia being the symptomatic accompaniment of various organic diseases more or less pronounced, Clark says it appears to exist solely in an ultramicroscopic lesion in the brain per se. An abiotrophy of the neostratum or lenticular region between the corpus striatum and the globus pallidus is the most probable seat of the lesion in which the tonetic function of the neostratum is affected.

Journal of Orthopedic Surgery, Lincoln, Neb.

September, 1919, **1**, No. 9

Infected Wounds of Ankle. P. Chutro, Paris.—p. 521.
Nonunion Following Corrective Osteotomy of Tibia. E. S. Geist, Minneapolis.—p. 527.
*Lengthening Quadriceps Tendon. G. E. Bennett, Baltimore.—p. 530.
Self-Correcting Brace for Lateral Curvature of Spine. W. Truslow, Brooklyn.—p. 547.
Treatment of Ununited Fractures. F. C. Kidner, Detroit.—p. 549.
Pedal Groups. W. J. Merrill, Philadelphia.—p. 562.

Lengthening of Quadriceps Tendon.—Loss of flexion as the result of fractures of the lower third of the thigh, which require plating or long immobilization because of slow union, Bennett feels is due to shortening and adhesions between the deep central fibers of the quadriceps (particularly the crureus vastus internus and vastus externus). He describes an operation which overcomes this shortening. It consists in severing the central section of the tendon at the point of adhesions, splitting the vastus internus and vastus externus free, and separating the attachment of these muscles from the patella, leaving the central section with a broad attachment to the patella, forcibly flexing the knee, and pulling down the section dissected. The next step is the sewing up of the structures in such a way as to give the greatest amount of strength. The vastus internus and vastus externus are firmly united to the patellar tendon, the sections immediately above are sewed together with either strong silk, kangaroo tendon or chromicized catgut, the leg is then fixed in a flexion position of about 80 degrees for a period of three weeks. At the end of this time the plaster is removed, and the leg allowed to be extended fully, giving passive motion each second day.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, 1919, **14**, No. 1

Relation Between Tonus and Smooth Muscle in Terrapin Heart. C. D. Snyder and E. C. Andrus, Baltimore.—p. 1.
Action of Epinephrin on Heart. I. Action on Turtle Heart. W. J. R. Heinekamp, Chicago.—p. 17.
*Salicylates. XI. Stability and Destruction of Salicyl Group Under Biologic Conditions. P. J. Hanzlik and N. C. Wetzel, Cleveland.—p. 25.
*Salicylates. XII. Excretion of Salicyl After Administration of Methyl Salicylate to Animals. P. J. Hanzlik and N. C. Weetzel, Cleveland.—p. 43.
*Effects of Chlorin On Isolated Bronchi and Pulmonary Vessels. H. G. Barbour and H. W. Williams, New Haven, Conn.—p. 47.
*Drugs After Chlorin Gassing. I. Influence of Morphin On Fatality of Chlorin Poisoning. H. G. Barbour, A. M. Hjort and F. A. Taylor, New Haven, Conn.—p. 55.
*Drugs After Chlorin Gassing. II. Treatment of Gassed Dogs with Circulatory Stimulants. H. G. Barbour, New Haven, Conn.—p. 61.
*Effects of Chlorin On Body Temperature. H. G. Barbour, New Haven.—p. 65.

Stability and Destruction of Salicyl Group.—According to Hanzlik and Wetzel, solutions of sodium salicylate gradually deteriorate on standing, the loss being greater with weaker solutions. The destruction is due to some form of living matter such as fungi, since solutions containing a preservative (chloroform), and free from fungi, do not deteriorate. Yeast destroys salicylate, but not nearly as much as the fungus which naturally grows in salicylate solutions. Treatment of salicylate with hashed animal organs results in considerable loss of the drug, which in part, at least, is due to destruction of salicyl. There is no difference between the action of liver and other organs. About 20 per cent. of salicylate administered to normal human individuals is destroyed, since the loss cannot be accounted for in sweat and feces or by retention. The destruction in animals (dog and cat) is even greater, amounting to about one half of the salicyl administered. The destruction of salicylate is markedly increased (about 40 per cent.) in febrile conditions of man, drug habitues (alcohol and morphin), nephritis of both man and dog, and in exophthalmic goiter. The destruction does not appear to be the special function of a given organ such as the liver, since the excretion in certain diseases of the liver in man in hepatic degeneration in animals was within the normal range. The increased capacity for destruction, therefore, may be ascribed to the general increase in metabolism (catabolism) of febrile conditions and exophthalmic goiter; to retention with prolonged exposure to the destructive action of the tissues in nephritis.

Excretion of Salicyl.—The excretion of salicyl by animals (dog and cat) after the administration of methyl salicylate Hanzlik and Wetzel claim is much less (25 per cent.) than after sodium salicylate. After gastric administration the free ester was found in urine in concentrations of from 0.2 per cent. to 0.52 per cent., and 14.4 per cent. after intramuscular injection. This may be of importance in explaining the greater analgesic properties and toxicity possessed by methyl salicylate, and in urinary and systemic antiseptsis.

Effects of Chlorin on Bronchi.—The presence of even small concentrations of chlorin Barbour and Williams state leads to a slight relaxation of pulmonary vessels. When a concentration approximating 250 mg. of chlorin to 1 liter of Locke's solution is attained the same response occurs but is soon succeeded by a slow and prolonged contraction of the muscle. High concentrations, 620 mg. per liter, produce no relaxation but a rapid and extensive contraction. These vascular rings will, however, relax again if the solution be replaced by one which is chlorin free. The bronchial musculature yields similar responses to chlorin but the relaxation occurs with less constancy. It was marked however in one case where the concentration was as high as 680 mg. being succeeded by the usual constriction produced by such amounts. Another difference between vessels and bronchi lies in the fact that for the latter the minimal constricting concentration is much lower than for the former, less than 200 mg. per liter sufficing to contract the bronchial rings.

Morphin After Chlorin Gassing.—Barbour and his associates claim that subcutaneous doses of morphin as large as 10 mg. per kilogram (given twice daily) exert, if anything, an unfavorable effect on chlorin gassed dogs. Smaller doses (3 to 5 mg. per kilogram) do not appear to influence significantly the fatality percentage. It would appear that morphin may safely be used in gassed individuals, for its analgesic effect, if the size and frequency of the doses are limited.

Epinephrin After Chlorin Gassing.—Barbour says that it is improbable that either epinephrin or ouabian can be made to exert a favorable influence on chlorin poisoned dogs.

Effects of Chlorin on Body Temperature.—In the treatment of gassed patients it is suggested by Barbour that an excessively warm environment may be as dangerous as one which is too cold.

Kansas Medical Society Journal, Topeka

September, 1919, **19**, No. 9

Differential Diagnosis of Mental Diseases. M. L. Perry, Topeka.—p. 205.
My Experience at the Front. J. G. Missildine, Parsons.—p. 209.
General Psychiatry for General Practitioner. K. A. Menninger, Topeka.—p. 212.

Kentucky Medical Journal, Bowling Green

September, 1919, **17**, No. 9

Empyema Treated by Injection of Bismuth Paste. H. R. Nusz, Cecilia.—p. 364.
Urgent Need of Better Health Work. J. F. Dunn, Arlington.—p. 365.
Eclampsia: An Hypothesis. L. K. Baldauf, Louisville.—p. 367.
Summer Diarrheas of Children. W. J. Shacklett, Glendale.—p. 368.
Influenza. M. M. Robinson, and A. Baker, Berea.—p. 370.
Hygiene of Nose and Throat. R. Lockhart, Owensboro.—p. 372.
Symptoms and Treatment of Arterio-Sclerosis. H. A. Gilliam, Milburn.—p. 378.

Medical Record, New York

Sept. 20, 1919, **96**, No. 12

*Therapeutics and Gastro-Intestinal Disorders. D. Vanderhoof, Richmond, Va.—p. 487.
Peripheral Irritations and their Remote Consequences. R. T. Morris, New York.—p. 491.
Pellagra. E. H. Williams and G. G. Hunter, Los Angeles.—p. 492.
Hay-Fever and Asthma. W. Scheppegrell, New Orleans.—p. 494.
Pseudomeniere's Disease; Angiospasm of Internal Auditory Artery. A. Leprince, Nice, France.—p. 496.
Laboratory Service in American Expeditionary Forces. R. G. Stillman, New York.—p. 500.
Observations on Empyema Thoracis in Camp Hospital No. 26, 1918-1919. S. S. Rosenfeld, U. S. Army.—p. 505.

Causes of Indigestion.—Vanderhoof has tabulated the clinical diagnoses in 2,000 consecutive cases of chronic or recur-

ring indigestion. The series embraced only those patients whose chief complaint was attributed to some disturbance of digestion, such as "stomach trouble," dyspepsia, abdominal pain, flatulence, vomiting, etc., and entirely excluded patients complaining of other symptoms who were found on examination to have some lesion of the gastro-intestinal tract. Each patient received thorough study embracing a careful history, complete physical examination, and the necessary laboratory analyses, including as a routine one or more gastric analyses, urine exmination, and differential blood count, with hemoglobin determination. In the second 1,000 cases the fractional method of gastric analysis was employed and routine Wassermann tests of the blood serum have been done. Advantage has been taken of roentgen-ray studies, and much helpful advice has been secured by Vanderhoof in consultations with surgical colleagues. The result was as follows: chronic appendicitis, 436 cases, 21.8 per cent.; chronic cholecystitis, 224 cases, 11.2 per cent.; neuroses, 218 cases, 10.9 per cent.; peptic ulcer, 206 cases, 10.3 per cent.; affections of kidneys, 137 cases, 6.8 per cent.; achylia gastrica (uncomplicated), 81 cases, 4.0 per cent.; visceroptosis, 69 cases, 3.4 per cent.; affections of lungs, 60 cases, 3.0 per cent.; affections of heart, 50 cases, 2.5 per cent.; cancer of stomach, 46 cases, 2.3 per cent.; affections of blood and ductless glands, 44 cases, 2.2 per cent.; enterospasm (mucous colitis), 40 cases, 2.0 per cent.; peritoneal adhesions, 38 cases, 1.9 per cent.; affections of female pelvic organs, 35 cases, 1.7 per cent.; affections of eyes, 32 cases, 1.6 per cent.; migraine, 26 cases, 1.3 per cent.; organic disease of central nervous system, 22 cases, 1.1 per cent.; cancer of intestine, 21 cases, 1.0 per cent.; infectious diseases, 19 cases, 0.9 per cent.; affections of liver, 18 cases, 0.9 per cent.; affections of ears, 16 cases, 0.8 per cent.; enterogenous toxemia, 11 cases, 0.5 per cent.; miscellaneous conditions, 114 cases, 5.7 per cent.; diagnosis not made, 37 cases, 1.8 per cent.

Mental Hygiene, Concord, N. H.

July, 1919, **3**, No. 3

*Mental and Nervous Changes in the School Children of Trier, Germany, Caused by Malnutrition. S. Blanton, U. S. Army.—p. 343.
Success and Failure as Conditions of Mental Health. W. H. Burnham.—p. 397.
Education and Mental Hygiene. C. M. Campbell, Baltimore.—p. 398.
Special Preparation of Psychiatric Social Worker. B. Glueck.—p. 409.
Individual Versus the Family as Unit of Interest in Social Work. E. E. Southard, Boston.—p. 436.
*Medicopsychologic Study of Delinquents. W. Healy and A. G. Bronner, Boston.—p. 445.
Better Statistics in Criminology. H. M. Pollock.—p. 453.

Mental Changes in Children Due to Malnutrition.—Blanton reports the results of a study of the changes occurring in the schoolchildren of Trier, Germany, due to malnutrition caused by war conditions. It was found that at least 40 per cent. of the children, were suffering from malnutrition to such a degree as to cause a loss of nervous energy. There was no increase in the percentage of cases normally found of neuroses, psychoses, abnormal "nervousness," organic nervous diseases, tics or conduct disorders. There was, however, an increase of the number of borderline defectives totaling not more than 1 per cent. of the total school population. There was no increase in the percentage of speech defects, especially stuttering, normally found; but there was a marked increase in poor, lisping, slurring speech due to the retardation or interference of the fine coordinations, necessary for good speech, caused chiefly by malnutrition. The percentage of children failing to pass grades increased from an average of 8 per cent. in prewar years to 15 per cent. in 1917 and 1918. It is estimated that about half of this 7 per cent. increase in retardation is due to malnutrition, the other half to war conditions. The specific changes noted in the children caused by malnutrition were a lack of nervous and physical energy; inattention during school hours; poor and slow comprehension for school tasks; poor memory for school work; general nervous restlessness while in school.

Caring for Delinquents.—Healy and Bronner point out that a rational method of meeting the needs of the youthful offender, which indirectly affords, of course, the greatest protection to society by thwarting his prospective career, is only to be developed by utilizing the facts acquired through a good technic of medicopsychology. This procedure, carried out with sympathy and thoroughness, will contribute greatly to the effectiveness of courts and of other human agencies which attempt some solution of the problems of delinquency. Many of the huge number of failures which occur under the ordinary system it will be possible to avoid. Moreover, evaluating any method or régime as conducted under court or institutional auspices is rationally possible only when the essential facts of causation and potentialities of the human material handled form the bsis of judgment.

Nebraska State Medical Journal, Norfolk

July, 1919, **4**, No. 7

Hospital Standardization and Medical Efficiency. J. S. Welch, Lincoln.—p. 193.
Postoperative Care of Surgical Patients—Lesson Learned from Army Methods. A. J. Brown, Omaha.—p. 197.
Evolution of Suprapubic Operation of Prostatectomy, and Its Latest Status. J. E. Summers, Omaha.—p. 202.
Diverticulitis and Peridiverticulitis. M. Emmert, Omaha.—p. 208.
Herniotomy Under Local and Spinal Anesthesia. H. B. Boyden, Grand Island.—p. 210.
Heat and Cold in Surgery. C. H. Breuer, Lincoln.—p. 212.
Roentgen-Ray Diagnosis of Kidney Lesions. R. L. Smith, Lincoln.—p. 216.
Lip Reading: Aid to Hard of Hearing Adults. E. B. Kessler, Omaha.—p. 217.
Tetanus: F. A. Dorsey, Hartington.—p. 218.

New Orleans Medical and Surgical Journal

September, 1919, **72**, No. 3

Plea for More Careful Examination of Urine in Suspected Urinologic Conditions. H. W. E. Walther, New Orleans.—p. 105.
Pneumonia Therapy, with Special Reference to Influenzal Bronchopneumonia. A. A. Herold, Shreveport, La.—p. 108.
Epidemic Meningitis from a Control Standpoint. W. H. Seemann, New Orleans.—p. 112.
Parham-Martin Band in Oblique Fractures of Long Bones. H. B. Gessner, New Orleans.—p. 116.
Acute Mastoid Antrum Infection in Infants. H. Dupuy, New Orleans.—p. 120.
Lessons Learned and Results Accomplished During Influenza Epidemic. G. C. Chandler, Shreveport.—p. 124.
Bone Grafting for Nonunion of Fractures; Discussion of Albee's Saw. E. L. Sanderson, Shreveport.—p. 130.
Interlobar Pleurisy. M. S. Picard, Shreveport.—p. 132.
Mechanical Treatment of Nosebleed. D. T. Atkinson, San Antonio.—p. 135.
Elixir Trichlorethiden Propenyl Ether in Obstetrics. J. W. Lamon, Donner, La.—p. 137.

New York Medical Journal

Sept. 20, 1919, **110**, No. 12

Modern Commentaries on Hippocrates. J. Wright, Pleasantville, N. Y.—p. 485.
Relative Importance of Different Symptoms and Signs in Clinical Study of Cardiac Diseases. G. Wilson, Baltimore.—p. 488.
Dementia Praecox. J. F. W. Meagher, Brooklyn.—p. 490.
One Year (1918) of Urology at Brooklyn Hospital. N. P. Rathbun, Brooklyn.—p. 495.
Pneumoperitoneum. Roentgenologic Findings, and Observations on Intraabdominal Pressure. J. Rosenblatt, Bedford Hills, N. Y.—p. 501.
Hepatic Spasm and Hypersecretion. A. H. May, Buffalo.—p. 503.
Case of Multiple Visceral Sarcoma. Z. I. Sabshin, Stapleton, N. Y.—p. 504.

Oklahoma State Medical Assn. Journal, Muskogee

June, 1919, **12**, No. 6

Studies in Pyelography. J. H. Hays, Enid.—p. 148.
Control of Venereal Disease. F. W. Ewing, Muskogee.—p. 155.
Syphilis and Its Relation to Diseases of Eye. R. O. Early, Ardmore.—p. 157.

July, 1919, **12**, No. 7

Cancer of Cervix; Plea for Early Diagnosis. G. A. Wall, Tulsa.—183.
Prevention of Cancer. W. F. Dutton, Tulsa.—p. 187.
Suggestions on Cause of Cancer. A. W. White, Oklahoma City.—p. 189.
Malignant Disease of Large Intestine. L. Long, Oklahoma City.—p. 191.
Diagnosis of Cancer; Plea for Greater Care in Examination. B. H. Brown, Muskogee.—p. 197.
Clinical Report of Operation on Undescended Testes. F. S. Clinton, Tulsa.—p. 198.

August, 1919, **12**, No. 8

Preparation and Use of Surgical Solution of Chlorinated Soda. M. Smith, Oklahoma City.—p. 215.
Ovarian Function. J. S. Hartford, Oklahoma City.—p. 224.
Blood Transfusion. F. L. Carson, Shawnee.—p. 228.

Clinical Report of Operation on Fracture of Patella. F. S. Clinton, Tulsa.—p. 231.

September, 1919, **12**, No. 9

Syphilis; Social Problem of Today. M. H. Foster, U. S. Army. —p. 239.
Syphilis; Primary Sore. J. F. Gorrell, Tulsa.—p. 245.
Skin Manifestations of Syphilis. C. R. Day, Oklahoma City.—p. 247.
Syphilis and Mental Psychosis. D. W. Griffin, Norman.—p. 248.
Methods for Treatment of Syphilis. W. J. Wallace, Oklahoma City. —p. 251.
Treatment of Syphilis. J. W. Rogers, Tulsa.—p. 254.
Curability of Syphilis. E. H. Martin and E. A. Purdum, Hot Springs, Ark.—p. 256.
Clinical Report of Mastitis. F. S. Clinton, Tulsa.—p. 261.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

Summer Number, 1919, **36**, No. 136

Systematic Examination of Abdomen. R. G. P. Lansdown.—p. 33.
Postgraduate Study. J. M. Fortescue-Brickdale.—p. 48.
Operative Findings in Thirty Cases of Gunshot Injury of Nerves. C. A. Morton.—p. 55.

Canadian Medical Quarterly, Toronto

September, 1919, **2**, No. 1

Shakespeare As a Guide in Art and Practice of Medicine. St.C. Thomson, London, England.—p. 362.
Disability Pensions. J. L. Biggar.—p. 374.
Etiology and Operative Treatment of Acquired Oblique Inguinal Hernia. E. R. Secord, Brantford, Canada.—p. 383.
Rehabilitation of Cardiac Cases. C. S. McVigar, Orpington, England. —p. 387.
Diseases of Respiratory System as Medical Problems in Rehabilitation. J. H. Elliott.—p. 392.
Medical Problems Relating to Rehabilitation of Functional Neuroses of War. G. F. Boyer.—p. 402.
Treatment of Puerperal Septicemia. A Special Consideration of Intravenous Sterilization with Chlorazene and Eusol. G. G. Copeland. —p. 407.

Glasgow Medical Journal

September, 1919, **10**, No. 3

*Resection in Sliding Hernia. H. Rutherford.—p. 113.
Gunshot Wounds with Deaths and Disabilities Resulting Therefrom, As Seen In a Home Hospital. J. A. Wilson.—p. 119.
Case of Spasmodic Stricture of Urethra. H. E. Jones.—p. 128.
Phenomena of "Serum Disease": Relation Between Its Various Forms and Proteins of Horse-Serum. W. T. G. Davidson.—p. 129. To be Cont'd.

Resection in Sliding Hernia.—Rutherford reports two cases, one of irreducible sliding hernia of the sigmoid and one of sliding hernia of the cecum and a portion of the ileum with two retrograde loops of the latter. In the second case there was also a twisting and strangulation of the cecum, which was gangrenous and gangrene of the two loops inside the abdomen and of one of the three external loops.

Indian Medical Gazette, Calcutta

August, 1919, **54**, No. 8

Pandemic of Influenza (La Grippe) in Province of Coorg During 1918. E. H. Wright.—p. 281.
Treatment of Syphilis; Wassermann Reaction Thereafter. E. E. Waters.—p. 290.
Sclerocorneal Trephining by Elliot's Method. A. E. J. Liser.—p. 294.
*Case of Parenchymatous Nephritis. D. McCay.—p. 297.
*Treatment of Cholera. M. P. Chacko.—p. 299.

Increased Protein Diet in Parenchymatous Nephritis.—McCay reports a case of nephritis with edema all over the body, in which a cure was finally obtained by increasing the protein in the diet. McCay calls attention to the fact shown by Epstein that when the protein of the blood is very much reduced the osmotic tension falls and fluid passes out into the tissue spaces, and will be retained there unless and until the blood recovers its protein element. Hence, the rational treatment of these cases is to increase the protein of the blood, which is safely done by increasing the protein of the diet. The carbohydrate protein of the diet should be reduced, because one of the main products of its metabolism is water. The protein in the case cited was increased up to 165 gm. per day and this raised the total nitrogen of the patient's blood to 2.03 per cent., which was quite enough to maintain the equilibrium between the blood fluid and the fluid in the spaces. The patient now takes from 40 to 50 ounces of water every day, and passes the whole quantity out with his urine, whereas before almost every drop of fluid he took used to pass out into the tissue spaces and collect there; and no measures—medicinal or otherwise—could make that water pass out of his body.

Treatment of Cholera.—Chacko records cases of cholera treated successfully by the intravenous injection of hypertonic sodium chlorid solution as suggested by Sir Leonard Rogers.

Japan Medical World, Tokyo

Aug. 17, 1919, No. 296

*Autogenous Serum Therapy of Smallpox. K. Hata.
Efficacy of Chlorate of Chinine Against Surgical Tuberculosis. T. Matsunaga.
Chlorate of Emetin in Pulmonary Distomiasis. T. Saiki.
Inhibitory Influence of Linosol and Other Creosote Derivatives Against Growth of Tubercle Bacillus. S. Takenaka.
Comparative Study of Excretion of Calcium Salts by Either Internal or Intravenous Administration. K. Shigetomi.

Autogenous Serum Therapy of Smallpox.—Hata carried out some clinical observations. In nonhemorrhagic smallpox no death occurred among those who had been treated with autogenous serum. In hemorrhagic cases, it produced 16 per cent. less mortality than the symptomatic treatment. In all the cases of smallpox combined the mortality was 8.6 per cent. less than with the ordinary treatment. The entire course of the illness was made strikingly short. Reconvalescent serum seems to have some therapeutic efficacy. Normal serum (human) seems to have no therapeutic efficacy against smallpox.

Journal of Laryngology, Rhinology and Otology, London

September, 1919, **34**, No. 9

*Method of Treating Atrophic Rhinitis with Ozena Based on an Alteration in Composition and Reaction of Substrate on Which the Bacterial Ferments are Acting. T. H. C. Benians, and C. H. Hayton. —p. 325.
Gunshot Wounds of Nasal Accessory Sinuses. J. F. O'Malley.—p. 333.
Aqueduct of Fallopius and Facial Paralysis. D. McKenzie.—p. 336.

Method of Treating Atrophic Rhinitis.—The treatment discussed by Benians and Hayton is described as a glycophilic method of bacterial selection, and is directed primarily against the fetor of the disease. The substances used thus far in this method of treatment are glycerin and liquid glucose. These substances are applied copiously to the mucous membrane of the nose in a mixture consisting of pure glycerin with the addition of 25 per cent. liquid glucose. Several applications a day are made with a cotton-wool applicator, the whole of the nasal cavity being gone over and the crusts rubbed off as far as possible. From time to time the flora of the nose is examined to note the cultural properties of the bacteria present and to determine whether or not they are of the strain to ferment the culture medium supplied. Glycerin, though less satisfactory from a theoretical point of view, since it is less easily broken up by bacteria, has some advantages over glucose on account of its physical properties. In some cases where a spray or irrigation is required a mixture of the two substances has been used in a 10 per cent. aqueous solution. The authors emphasize that the whole secret of the success in this method of treatment lies in the fact that the solution must be applied thoroughly to every part of the mucous membrane infected at least four or five times daily at first. As improvement is noted, it will not be necessary to paint so often.

Journal of Tropical Medicine and Hygiene, London

Aug. 15, 1919, **22**, No. 16

Lichen Scrofulosorum in Sudan. A. J. Chalmers, and A. Innes.—p. 153.

Lancet, London

Sept. 6, 1919, **2**, No. 5010

Hygiene in Egypt. A. Balfour.—p. 417.
*Carcinoma of Rectum: Choice of Operation. I. Back.—p. 421.
*Sedimentation of Tubercle Bacilli In Sputum. J. G. Greenfield and J. Anderson.—p. 423.

Case of Lymphadenoma With Periodic Pyrexia ("Pel-Ebstein Disease"). A. Abrahams.—p. 424.
*Relation of Exophthalmic Goiter to Diabetes and Glycosuria. R. T. Williamson.—p. 425.
Cholera of Sheep. (Jaundice; Yellows or Yellowses; Headgrit or Plocach). J. P. McGowan.—p. 426.
Aural Suppuration in Early Childhood: Prevention and Treatment. D. Guthrie.—p. 429.
Prophylactic Quinin in Malaria. A. H. Gosse.—p. 431.
Roentgen Rays in Treatment of Certain Forms of Dysmenorrhea: Plea for Their More Extensive Use. F. Hernaman-Johnson.—p. 432.
*Iodids and The Thyroid. F. Ransom.—p. 433.

Operation for Carcinoma of Rectum.—Back claims that only 30 per cent. of cases of carcinoma of the rectum admit of radical operation when first seen. He insists that when radical operation is impossible, a hypogastric colostomy should be done at once. Radical operations which aim at retaining the anal canal, he says, are pathologically unsound. The only sound radical operations in his opinion are: (1) the two stage operation (colostomy and intraperitoneal excision by the perineal route later); and (2) the combined abdominoperineal operation. Of these, the former is the better, except in the case of a growth situated at the junction of the sigmoid and the rectum.

Sedimentation of Tubercle Bacilli in Sputum.—In the method described by Greenfield and Anderson 5 c.c. of sputum are mixed with twice their volume of sodium carbonate (crystals) 1, phenol 1 and water 100, in a centrifuge tube; the tube is then covered with a rubber cap, shaken for a few minutes and put in the incubator for from twelve to twenty-four hours. At the end of this time the tube is centrifugalized for about fifteen minutes, the supernatant fluid poured off, and films made from two to four loopfuls of the deposit are stained in the usual way.

Relation of Exophthalmic Goiter to Diabetes and Glycosuria.—Cases are reported by Williamson to illustrate that a relationship exists between exophthalmic goiter to diabetes mellitus and glycosuria.

Iodids and Thyroid.—The action of iodids in relieving a condition in which the thyroid secretion is deficient, Ransom says, is due to two facts: (1) Iodin is specifically absorbed by the gland; (2) the iodin in the gland in saturating the unsaturated fatty acids of the blood supply favors the autolysis by which the active principle of the gland is produced. Ransom states further that the efficacy of iodids in tertiary syphilis may be explained on these lines, and it is anticipated that tertiary syphilis may be treated successfully with thyroid.

Medical Journal of Australia, Sydney

Aug. 9, 1919, **2**, No. 6

Radical Cure of Pelvic Deformity. H. Jellett.—p. 102.
*Outbreak of Scorbutus at Kew, Victoria. W. A. T. Lind.—p. 107.
Clinical Diagnosis of Spanish Influenza. D. P. O'Brien.—p. 108.

Aug. 16, 1919, **2**, No. 7

Nationalization of Medicine. J. H. L. Cumpston.—p. 125.
Sixty Cases of Pneumonic Influenza Treated with Mackinnon-Ray Vaccine. A. Grieves.—p. 128.
Tendon Transplantation for Dorsal Interosseous Paralysis. L. G. Teece.—p. 131.

Etiology of Scurvy.—Lind records twelve cases of scurvy from the Idiot Cottages at Kew, Victoria, which showed some interesting features concerning the etiology of this disease. The disease affected the inmates of three cottages only. One of the buildings is situated several hundred yards from the other two buildings, which are about 50 yards from each other, but patients are frequently transferred from one to the other of these buildings. Investigations showed that all the patients affected were cripples and confined to bed or chair. The disease attacked both sexes with the same intensity and frequency. There has been no alteration in the dietary of the patients for years. Other patients suffering from the same crippled conditions and with the same food were unaffected. All the milk used in the institution is boiled before the patients consume it. The food given to these hand fed patients contains excess of carbohydrates over the proteins and it is all cooked. The timing of the onset in each ward suggested a contagious disease. The scurvy cleared up in the majority of the cases shortly after the patients received a special dietary, consisting of raw eggs, lime water, lemon juice and raw milk. A more liberal supply of vegetables, porridge and beef tea was given to all patients receiving invalid diet. Those patients who died were examined post-mortem and showed extensive hemorrhage under the periosteum of the long bones and separation of the epiphyses. It is suggested that in addition to the lack of certain vitamins, there may be a contagious infection present. The evening temperature of the patients was usually about 38 C.

Practitioner, London

September, 1919, **103**, No. 3

Some General Principles of Therapeutics. R. Hutchison.—p. 161.
Pulmonary Tuberculosis. Sir T. Horder.—p. 176.
Early Diagnosis of Intestinal Obstruction. R. Warren.—p. 182.
Operative Treatment of Peptic Ulcer. J. Taylor.—p. 194.
Review of Recent Work on Nervous Diseases. H. C. Thomson.—p. 203.
John Hunter's Influence on Genito-Urinary Surgery. H. Lett.—p. 213.
Fractured Lamina; Laminectomy. R. E. Smith.—p. 229.
Reflex Uterine Dyspepsia. T. G. Moorhead.—p. 231.
Historical Notes on Poison Gas. H. W. Spaight.—p. 233.

Annales de Médecine, Paris

August, 1919, **6**, No. 3

Conditions and Mechanism of Artificial Nystagmus of Rotatory and Vertical Types. L. Bard.—p. 165.
*Congenital Disease of the Heart. E. Lenoble.—p. 185.
*The Alleged Allergic Relations between the Skin Tuberculin and Luetin Reactions. G. Blechmann.—p. 200.
*Pancreatic Diabetes. M. Labbé.—p. 204.
*Acute Landry's Paralysis after Vaccination against Typhoid. G. Guillain and J. A. Barré.—p. 218.
*Some Tuberculosis Statistics. P. J. Ménard.—p. 223.
Slow Endocarditis in Man of Fifty-Two. A. Cain and J. Paraf.—p. 234.

Congenital Disease of the Heart.—Lenoble analyzes the necropsy findings in two additional cases of congenital disease of the heart which had caused no serious symptoms during the thirty-five years of life. He describes further the clinical findings in three other similar cases, this report supplementing three previous articles in the *Annales*. In less than three years he has encountered (in Bretagne) thirteen cases of these congenital heart lesions. The diversity of the clinical types was extreme.

Relations Between Luetin and Tuberculin Skin Reactions.—Blechmann has been comparing the responses to the luetin skin and the Pirquet tuberculin skin tests in eighty children. He obtained a positive luetin reaction in from 30 to 35 per cent. of the children with inherited syphilis, but he also obtained a positive reaction in 40 per cent. of the children free from inherited syphilis. This suggests that the luetin reaction is not specific. His study of the subject seems to indicate that the luetin reaction is quite independent of that to tuberculin, and is rarely so well defined as the Pirquet reaction.

Pancreatic Diabetes.—Labbé comments on the invariably grave nature of pancreatic diabetes, as digestive disturbances from the lack of pancreas functioning are superposed on the symptoms from the diabetes. The pancreas should be suspected and investigated in every case of diabetes; if found at fault, pancreatic opotherapy should be instituted in addition to the treatment of the hyperglycemia and acidosis of the diabetes. The pancreas opotherapy should aim to substitute the lacking pancreatic digestive juice, and also to stimulate the internal secretion. Improvement by this means has been realized in some cases but not in all. In his experience, the symptoms from the diabetes were not modified by it in any way but, on the contrary, there was always an important though transient increase in the glycosuria at first, as if the pancreatic opotherapy had suddenly mobilized an increased amount of sugar substances. He analyzes six cases to show the necessity for distinguishing the symptoms for which the pancreas is responsible from those due to the diabetes. He also traces the evolution of the conception of pancreatic diabetes, the "thin type," the digestive disturbances from the insufficiency of the pancreas causing more or less loss of weight. He has examined the pancreas in 19 diabetic cadavers and in 37 nondiabetics. No connection

between the lesions in the pancreas and the intensity of the diabetes was apparent, and sometimes the pancreas seemed absolutely sound in the graver cases of diabetes. But as a general thing many of the islands of Langerhans were pathologic, and transitional states from islands to acini were frequent, while the reverse was rare. In 30 of the 37 non-diabetic cadavers the pancreas was as pathologic as in many of the diabetics, and the lesions were of the same type in both, but in none was there such extreme sclerosis as was found in some of the diabetic cases. Thus neither histology nor pathologic anatomy reveals the secret of the diabetic process. There is no specific diabetic lesion in the pancreas, and we may well be guarded in our interpretation of the physiology of pancreatic lesions. In some of the six cases described, the previously obese patients grew more and more emaciated in spite of their enormous appetite which they were never able to satisfy. In one case the pancreatitis was probably of syphilitic origin.

Landry's Paralysis After Vaccination Against Typhoid.—Guillain and Barré are convinced of the causal connection between the antityphoid vaccination of the brigadier of 31, formerly a farmer, and the fatal acute ascending paralysis. He had been given three injections of the vaccine in 1915 and was in good health a year later, when 1.5 c.c. of the current vaccine from the laboratory of the military school at Val-de-Grâce was injected in the shoulder. That evening and the next day he complained of stiffness and numbness in the legs and hands, and by the third day he found he was unable to whistle. The symptoms progressed to paralysis, fatal the tenth day. There had been no preceding infectious disease, and the man had not been bitten by any animal. There was no history of syphilis or alcoholism, and he had three children.

Some Statistics of Tuberculosis.—Ménard deduces from his prolonged study of 225 tuberculous soldiers that the onset of tuberculosis may present a wide variety of types. The first sign that anything is wrong may be an *embarras gastrique*, neuralgic or rheumatic pains, functional heart disturbance, "colds," bronchitis, febrile painful lassitude, etc. The remarkable fact is that having begun insidiously with symptoms of a certain order, it persists in exhibiting this same set of symptoms all through the other symptoms which may develop *en route*. There is then a long latent interval—six months, twenty months, thirty-eight months—after the appearance of the first symptoms before the disease manifests itself. Then it throws off its mask and develops openly. What are the reasons for this sudden transformation from the insidious form to this open manifestation? He suggests that this may represent the true problem of pulmonary tuberculosis.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

March, 1919, **8**, No. 3

*Nonpuerperal Abscess of the Ovary. E. Chomé.—p. 113.

Nonpuerperal Abscesses of the Ovary.—Chomé found that the abscesses were in the corpora lutea in all of his seventeen cases of this kind. The secreting elements of the ovary are on the outside, and when it opens to expel the ovule, this opening may give entrance to germs, and an abscess may develop at the entering point. No inflammatory phenomena have ever been detected in the rest of the ovary, while the abscesses in the corpora lutea always corresponded to an adjacent septic focus in or near the intestines, etc., in the small pelvis. The micro-organisms corresponded likewise, and the functional disturbances were those to be anticipated with disease in the corpora lutea. Menstruation was always profoundly modified, as also the cycle of cholesterolemia.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 11, 1919, **43**, No. 24

Case of Pulmonary Valvular Lesion plus Mitral Stenosis. C. Gandy.—p. 691.
*Amebic Liver Abscess. A. Chauffard and F. Françon.—p. 698.
*Sporadic Hemophilia with Myxedema. R. Benard.—p. 702.
The Arterial Pressure with Disordered Heart Action. Laubry and Leconte.—p. 709.
Bacillary Dysentery and Malaria. E. Job and L. Hirtzmann.—p. 714.

Amebic Liver Abscess.—Chauffard and Françon report the case of a young man with an acute abscess in the liver, as large as a mandarin orange, following symptoms of amebic dysentery. They administered emetin and neo-arsphenamin, and recovery was soon complete with merely these medical measures. The Bordet-Wassermann reaction was positive at first, but veered to negative under the first injection of emetin. They know of ten similar cases in which an acute amebic abscess in the liver retrogressed completely under the emetin and neo-arsphenamin without the knife. In any event, the medicinal treatment should precede the operation.

Hemophilia with Myxedema.—Benard found marked improvement in both the tendency to hemorrhages and the myxedema under thyroid treatment of the young man in the case described.

Journal de Médecine de Bordeaux

Aug. 10, 1919, **90**, No. 15

Luxation of Meniscus. J. Brau-Tapie.—p. 303.
*Kidney Symptoms in Prisoners of War. H. Mallié.—p. 304.
Abscess in Front of Kidney Due to Guinea-Worm. J. Peyrot.—p. 308.
General Anesthesia in America. H. Wilderman (Philadelphia).—p. 310.
Study of Pupil Accommodation and Convergence Reflexes. Cabannes.—p. 314.
The Administrative Control of Tuberculosis at New York.—B. L. Wyatt.—p. 316.

War Nephritis.—Mallié states that during his stay at the prison camp of Altengrabow in Prussia, where there were 12,000 Russian and 12,000 French and Belgian war prisoners stationed, he took notes of 404 cases of kidney disturbance among the men. The actual number was much larger than this. The only explanation possible for the facts observed, he says, is to assume a toxic action from spoiled meat and spoiled canned goods. The cooking killed the germs, but did not destroy their toxic products.

Presse Médicale, Paris

Aug. 14, 1919, **27**, No. 45

*The Lessons of the War. Sir A. E. Wright.—p. 445.

The Lessons of the War and the New Views on Therapeutic Immunization.—Sir Almroth Wright asserts that the war has added two new facts to our knowledge of immunization. We have learned that when the necessary conditions have been provided in an infected wound, that is, when all the devitalized tissues have been excised, the wound can be sutured and the protective forces of the body will suppress the infection except when there is no capacity for reaction, and there are streptococci present. The second fact is that the natural resistance to typhoid fever can be powerfully reenforced by inoculation with typhoid vaccine. If we merely apply these facts in practice this will be some gain, but nothing in comparison to what we can obtain by mastering the principles involved, and by applying them to solve other problems in the treatment of bacterial infections. He apologizes for coining new terms to express the elements involved, saying that the reserves of short and simple words have long been exhausted, and that almost all Latin words have already been incorporated in our language, as well as all the simple Greek words. There is nothing left to draw on but long and compound Greek words. To define a man or an idea, some name has to be used, and a new technical term is the missionary of the idea. Among the new terms he advocates are "phylactic power," for the defense against infection; "kataphylaxis," the mobilization and transportation of the phylactic forces to the seat of the infection; "ec-phylaxis," a region in which the defensive elements of the blood have been rendered powerless or are unable to gain access to the region. Each colony of living bacteria is thus the center of an ec-phylactic focus. His other term, "epiphylaxis" represents the reserves of defensive forces that can be brought up; "apophylaxis" is his new term for what he formerly called the "negative phase" following antityphoid vaccination, for instance.

He reiterates that we must cast aside our old belief that every immunization has to be specific. We must call to our aid collateral immunization, especially in old tuberculous or streptococcus infections in which the power to react to the

specific germs has become exhausted. The best vaccine to use is the one that gives the best immunizing reaction to the micro-organism which we are combating. He shows how this can be determined in vitro, and how transfusion of blood can be done with blood which has been rendered more bactericidal in the interval after it is drawn, before it is injected into the patient. A case is described in which this "immunotransfusion" was done, with an immediate change for the better and recovery. The streptococcus infection of the extensive wound in the sacrum and ilium had previously been growing progressively worse even with repeated radical operative measures.

Aug. 21, 1919, **27**, No. 46

Nitrous Oxid Anesthesia. Desmarest and Amiot.—p. 457.
*Gangrene from Malaria. H. Alamartine.—p. 459.
*Acute Adenoiditis. R. Raimondi.—p. 461.
*The Oculocardiac Reflex. L. Binet.—p. 462.

Malarial Gangrene.—Alamartine reports three cases of obliterating endarteritis, with gangrene, all evidently of malarial origin. The patients were soldiers in the *armée d'Orient* and two recovered after amputation of the leg involved. The amputation came too late to save the third. In this latter case alone the malaria was the primary invasion. These cases teach the necessity for suspecting malaria in cases of extensive gangrene which otherwise might be classed as the work of syphilis or old age. He knows of a total of fifteen cases of the kind at the Macedonian front. The gangrene may be dry and slowly progressive or it may develop rapidly, with grave toxic infectious phenomena, or it may resemble Raynaud's disease and be mistaken for trench foot. In this latter form quinin may cure, but in the other forms quinin seems powerless, and no time should be wasted on it. Armed expectancy is justified in the slow, dry gangrene cases, but immediate amputation is demanded with grave toxic-infectious manifestations. All in this group died when amputation was deferred, while one patient with an extremely grave clinical picture recovered after the prompt, high amputation, pushing quinin at the same time.

Acute Adenoiditis.—Raimondi describes the various affections for which acute inflammation of adenoids is liable to be mistaken. If the adenoiditis recurs, he endorses their removal, even in infants.

The Oculocardiac Reflex.—Binet asserts that compression of the eyeball modifies not only the heart but also respiratory and motor functioning so that besides the oculocardiac there are oculorespiratory and oculomotor reactions. Among the practical applications of this method of research, he suggests having it used during auscultation of the heart in dubious cases. With an extracardiac murmur there is generally tachycardia. On compression of the eye the heart beat drops from 100 to 60 or 40, and the murmurs disappear, while an organic murmur becomes stronger and more distinct on compression of the eye. Compression of the eyeball may arrest a spasm of paroxysmal tachycardia. Its action on the vasoconstrictors is evident even in the brain; the headache after trephining becomes transiently reduced as the eyeballs are compressed. This may likewise arrest for half a minute respiration in inspiration, or it may slow the respiration, reducing the rhythm but increasing the amplitude. This explains the favorable action on asthma and on hiccup. The inhibiting effect on hiccup is particularly distinct, and Binet commends it for current practice. The oculomotor reflex is particularly pronounced in the shaking with a chill, as compression of the eyeball arrests the muscular contractions. Dulac's recent Paris thesis was devoted to the biologic effects and therapeutic action of compression of the eyeballs. Binet gives the tracings from a case of exophthalmic goiter showing the marked effect on the tremor of compression of the eyeballs. The tremor nearly stopped completely, and it did not resume its original amplitude for some time. In a case of athetosis, likewise, the inhibiting influence of compression of the eyes was marked, and Voisin has recently called attention anew to the arrest by it of neuropathic epileptiform seizures. Bailliart has applied the method further to determine the arterial pressure in the branches of the central artery of the retina, as Binet describes.

Revue Médicale de la Suisse Romande, Geneva

June, 1919, **39**, No. 6

Morphology of Influenza Bacillus Cultivated on Levinthal's Agar Medium. B. Galli-Valerio.—p. 265.
*Technic for Blocking Intercostal Nerves. A. Jentzer.—p. 271.
*Sclerosis of Coronary Arteries in Switzerland. A. Orliansky.—p. 276.
*Congenital Occlusion of Nasal Fossae. Barraud.—p. 286.

Paravertebral Anesthesia.—Jentzer has been making a special study of the exact points most favorable for blocking the nerves as they emerge from the spine. This paravertebral anesthesia materially reduces operative shock, even with extensive operations such as resection of the stomach. Much debilitated patients may be able to stand a major operation with this technic. The patient recuperates readily, and in Jentzer's thirty-two cases there was no vomiting although in a very few there was some nausea. In seventeen the anesthesia was quite satisfactory; in the others a few whiffs of ether were required. He gives a table showing that the lower part of the first dorsal apophysis or spinous process corresponds to the second intercostal nerve and the second space between the transverse processes; of the second, to the third nerve and third interspace; of the fourth spinous process, to the fifth nerve and the sixth costovertebral articulation; of the fifth, to the sixth nerve and seventh articulation; of the sixth, to the seventh nerve and eighth articulation; seventh, to the eighth nerve and ninth articulation; of the eighth, to the ninth nerve and ninth interspace; the ninth, to the tenth nerve and tenth interspace; the tenth, to the eleventh nerve and eleventh interspace. There is no nerve at the eleventh apophysis, corresponding to the twelfth articulation, but the twelfth apophysis is the *point de repère* for the twelfth intercostal nerve corresponding to the twelfth interspace.

The subject seated and bending far forward, to throw the spinous processes into relief, the skin is touched with iodin at the lower margin of the first dorsal and the first lumbar spinous process. A horizontal line is then drawn through each of the iodin dots. A point is then marked on the upper line, 4.5 cm. from the spine of the dorsal apophysis, and a second, similar point is marked on the lower line, 2.5 cm. from the spine of the lumbar apophysis. A straight line is drawn between these two points, and the injections are made along this line to block the nerves beneath. The needle is pointed a little toward the median line, and the tip is moved to and fro a trifle to be sure the anesthetic laves the sympathetic nerve and the posterior and anterior roots of the spinal nerve. As far down as the eighth dorsal spinous process, he makes the injection at a depth of 3 cm. From the eighth to the eleventh, at 3.5 cm., and at the twelfth, 4.5 cm. To reach the abdomino-genital nerves at the first lumbar spinous process, the depth must be 5 cm.; at the second lumbar, to act on the femoral and genitocrural, 6 cm., and at the third and fourth lumbar apophyses, 7 cm.

Sclerosis of Coronary Arteries in Switzerland.—Orliansky remarks that the numerous deaths from influenza last year enabled remarkably comprehensive postmortem study of the arterial system in robust young people. He sought especially for sclerosis of the coronary arteries, but found evidence of it or of fatty degeneration only in 23 per cent. between 18 and 20; from 21 to 30 the proportion was about the same as that reported from Germany, namely, about 46 per cent. in men and 17 per cent. in women. It has been said that in Germany no coronaries are ever found intact after 40, but at Geneva he found 12.8 per cent. intact in the fifties and 20 per cent. in the sixties.

Imperforate Nasal Fossae.—Barraud urges physicians to test the permeability of the nasal fossae as a routine measure in infants, as partial or complete occlusion is not so rare as generally assumed. He reports two cases of bilateral imperforate fossae in a newly born child and a girl of 13, both requiring an artificial opening, which was a simple matter.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 17, 1919, **49**, No. 29

*Rachitis and Osteomalacia. E. Looser.—p. 1065.
*Bill to Legalize Abortion in Switzerland. A. Labhardt.—p. 1078.
*Influence of Local Heat on Stomach. M. Lüdin.—p. 1085.
Transfusion of Detoxicated Autoblood. O. Vögeli.—p. 1088.

Rachitis and Osteomalacia.—Looser argues that tardy rachitis is the link between rachitis and osteomalacia. This assertion is based on 15 cases of severe tardy rachitis and 10 typical cases of osteomalacia, with 2 of a transitional form. All were examined repeatedly with the roentgen rays. The rachitis in some of the youths had dragged along from childhood. In others it was true tardy rachitis; the ages were from 12 to 20, the majority between 17 and 20; and all were infantile in their aspect, with pronounced backward development of the secondary sexual characters in both sexes. The thyroid was enlarged in some. The arrest in the growth and development is scarcely noticed until the attention is attracted to the early fatigue in walking and standing, and pains in the knees and ankles. They are generally ascribed to rheumatism, but the typical rachitic deformities soon appear, with thickening of the ends of the ribs and cartilage and of the epiphyses, and a tendency to scoliosis, genu valgum or varum and, generally, flatfoot. In florid cases the bones are apt to be tender but this tendency disappears when recuperation begins, and it is thus a good index of the stage of the disease process, and the only clinical symptom of it. The roentgen findings are always less pronounced than the reality.

Under phosphorus, 2 or 3 mg. daily, kept up for months, the pains subsided and the gait improved rapidly and permanently and the roentgen findings promptly changed to approximate the normal in all but one case. This was a girl of 20 with such a tendency to diarrhea that the treatment could not be kept up regularly. He gave the phosphorus in oil emulsion in the proportion of 0.02 or 0.03 c.c. to the 100 c.c. of oil emulsion, with one drop cinnamon oil and 0.01 c.c. saccharin. Cod liver oil was so hard to procure that he gave oil emulsion instead, and could not distinguish any difference in the outcome, while the patients were more inclined to keep up the treatment than with the unpalatable cod liver oil. His experience shows that tardy rachitis is more common than generally assumed. The so-called growing pains, rheumatic pains in young adults, are manifestations of tardy rachitis, and this is the same thing, he affirms, as osteomalacia. The differences between them are merely the different physiologic behavior of the bones in these different periods of life. In some of his cases he followed the development of the process from the fifteenth to the twenty-ninth year, and it was always a continuance, never any definite limit between the tardy rachitis and the osteomalacia. In his ten cases of osteomalacia only one of the patients was a man; in 4 of the women there was no connection between the osteomalacia and a pregnancy, but in the others there was an unmistakable aggravating influence from pregnancies. Benefit invariably followed administration of phosphorus in the oil emulsion, in the maximal daily dose of 3 mg. without other change in the mode of life. The earning capacity was restored in three months in the male case of osteomalacia, after four years of inability to do more than the lightest work.

Bill to Legalize Abortion in Basel.—Labhardt relates that the supreme council of the canton of Basel is now considering a law which removes the legal ban against induced abortion provided it is done by a registered physician and with the consent of both husband and wife or of the pregnant unmarried woman, and provided the pregnancy is of not more than three months' duration. No other restrictions or discriminations are made. Labhardt protests most emphatically against the proposed measure, presenting a number of obvious reasons why it would be physically dangerous for the woman, socially dangerous for society, and locally dangerous for the reputation of the canton. A copy of his six-page article has been sent to each member of the supreme council.

Influencing of Stomach Functioning by External Heat.—Lüdin is chief of the local Institute for Physiotherapy, and he here reports clinical and experimental research on the physiologic and therapeutic action on the stomach of heat applied externally. In 151 tests on 23 patients, no modification of the composition of the gastric juice could be detected from the influence of the external heat. The secretory function is not modified by the heat, but roentgen examination of 50 patients showed that the motor function of the stomach was materially promoted by the local heat. With organic stenosis of the pylorus (10 cases) the evacuation of the stomach was not accelerated, but in 9 patients with pylorospasm from ulcer, the period of expulsion of the stomach contents was materially shortened by external application of heat. This fact may prove important in roentgen differentiation of pylorospasm from organic stenosis of the pylorus. It explains also the relief of pain in the stomach by local heat. In addition to the relief of pain, the relaxation of the spasm of the pylorus is a decided advantage in treatment of gastric ulcer, preventing stagnation of the stomach contents with its train of irritation, hypersecretion and hyperacidity.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 31, 1919, **40**, No. 61

Technic for Lumbar Puncture. Enzo Romanelli.—p. 626.

Aug. 3, 1919, **40**, No. 62

*Sand-Fly Fever. Romano Tonin.—p. 635.
*Hunger Edema. Id.—p. 636.

Sand-Fly Fever.—In this report from an Italian hospital in Palestine, Tonin mentions the extreme prevalence of three-day fever or sand-fly fever among the Italian soldiers. It was noted moreover that those who had had this brief fever seemed to be immune to influenza during the pandemic that swept over the land about a year later. The virus of both sand-fly fever and of influenza seem to be filtrable, and many physicians confuse the two.

Hunger Edema.—Tonin comments on the odd fact that polyuria constantly accompanied the hunger edema which was pronounced in all the exprisoners of war seen at the hospital. The edema resembled actual dropsy in some cases, but the heart, liver and kidney seemed to be intact.

Aug. 7, 1919, **40**, No. 63

*Improved Technic for Tests for Acid. E. Pittarelli.—p. 651.

Technic for Test for Acidity.—Pittarelli warns that methyl orange is a derivative of dimethylamino-azobenzol, and that the latter cannot be substituted for it (as is frequently done), without modifying the reaction in testing for acidity.

Pediatria, Naples

August, 1919, **27**, No. 8

*Acute Poliomyelitis. S. Cannata.—p. 465.
*Initial Phase of Infantile Scorbutus. O. Cozzolino.—p. 477. Conc'n
*Pyocyaneus General Infection in Infants. A. F. Canelli.—p. 503.
*Case of Congenital Megacolon. A. Dalla Valle.—p. 515.

Acute Poliomyelitis. — Cannata remarks that Luciani reported 5 cases of acute poliomyelitis in 1883, and others reported later small epidemics of only from 3 to 26 cases at seven different points in Italy, until 1909 when Gioseffi reported 62 cases in the Trieste region, and Frisco 105 cases at Palermo in 1910 to 1912. In Cannata's own experience at Naples and vicinity, he has encountered 275 cases since January, 1914. In 68.7 per cent. of these cases there was paralysis of the legs, and in 13.4 per cent. of the arms. The acute poliomyelitis cases formed 2 per cent. of the total children brought to the pediatric clinic. He urges compulsory notification of the disease.

Scurvy in Infants.—Cozzolino describes the earliest phase of scurvy in infants, and expatiates on the absolute identity between scurvy in adults and in infants. The gums show the first manifestations of the scurvy, and permit the diagnosis in the incipient stage.

General Pyocyaneus Infection in Infants.—Both of the infants died in the two cases of pyocyaneus septicemia described by Canelli. The infants were 14 and nearly 3 months old, brother and sister, and the clinical picture was impressive, with hemorrhagic enteritis and furunculosis, and death in less than two weeks after the symptoms had first attracted attention. The first child's furunculosis had probably provided the portal of entry for the pyocyaneus.

Congenital Megacolon.—Dalla Valle reports the case of a boy of 5 who died from the toxins generated in the megacolon with intact mucosa. He knows of only two other cases of megacolon of which this can be said. In all other cases on record the fatality was due to mechanical, physical or other cause.

Riforma Medica, Naples

July 26, 1919, **35**, No. 30

*Appendicitis with Movable Kidney. D. Giordano.—p. 614.
*Pseudo-Aplastic Anemia. Giovanni Bernardi.—p. 617.
Comparative Value of Palpation and Percussion of the Spleen Region. P. Finizia.—p. 620.
*Diagnosis of Spirochetal Jaundice. G. Molinari.—p. 621.

Aug. 2, 1919, **35**, No. 31

Factitious Lesions of the Ears in the Military. G. Gradenigo.—p. 637.
Experimental Research on Transmission of the Sound of the Tuning Fork to the Chest Wall by Way of the Larynx, Bronchi and Lungs. G. Lamproni.—p. 639.
Influenza and Its Surgical Complications and Sequels. G. Angioni.—p. 641.
Influenza in Piemonte and Treatment of Its Pneumonic Form. P. F. Arullani.—p. 646.
Modern Views on Pathogenesis of Shock. E. Aievoli.—p. 647.

Appendicitis with Movable Kidney.—Giordano gives two illustrations to show the ease with which he removed the appendix through the lumbar incision for the kidney. The incision was no larger than usual for decapsulation and fixation.

Pseudo-Aplastic Anemia.—Bernardi reports a case of this kind in a man of 38 who died seven months after the first symptoms; they were diarhea and general debility with hemorrhages from the bowel but no fever. Necropsy confirmed the intense anemia of the pseudo-aplastic type, testifying to some grave and profound deviation from the normal in blood production.

Ictero-Hemorrhagic Spirochetosis.—Molinari gives a number of technical points that may aid in the bacteriologic diagnosis of spirochetal jaundice.

Rivista Critica di Clinica Medica, Florence

June 28, 1919, **20**, No. 26

Experiences with Typhus. G. Berghinz and C. Arrigoni.—p. 301. Conc'd in No. 25, p. 289.

July 19, 1919, **20**, No. 29

*Quinin Prophylaxis of Malaria. G. Comessatti.—p. 337.

Quinin Prophylaxis of Malaria.—Comessatti says that the war has been an experiment on a huge scale testing the value of quinin prophylaxis of malaria for large bodies of men, and demonstrating its failure. Whatever the cause of the failure may be, its reality was repeatedly demonstrated. In one group of 230 men, who were supposed to be taking 0.4 gm. of quinin regularly, 110 contracted malaria, including 92 who had been given nearly twice this dose. The men were stationed in the Isonzo and Piave districts.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

July, 1919, **2**, No. 7

*Stenosis of the Pylorus. S. Martínez Gómez.—p. 385.
Gallstones. Antonio Lara.—p. 398.
*Plastic Linitis. Santiago Carro.—p. 408.

Stenosis of the Pylorus.—Martínez reiterates that the only characteristic and pathognomonic symptom and sign of pyloric stenosis is the discovery of residual fluid, and relics of food in the fasting stomach in the morning after a test meal. He adds that we should never class a case as atony of the stomach, chronic dilatation or motor insufficiency until we can definitely exclude stenosis of the pylorus, as this alone is able to induce any or all of these conditions. He has repeatedly noticed that Reichmann's disease is usually followed by actual stenosis of the pylorus—a further argument in favor of the assumption that the former is due generally to an ulcer on or near the pylorus. The value of the stomach tube in solving diagnostic questions in this line is far beyond that of the roentgen rays, especially in cases of what he calls latent stenosis of the pylorus with toxemia. In two cases described, the stomach tube alone gave the clue which first permitted effectual treatment of the puzzling toxemia. In another case of supposed stenosis, the pylorus and stomach were found sound although the latter was dilated. Further investigation revealed cicatricial stenosis of the duodenum which had caused the symptoms for which the pylorus had been incriminated.

Plastic Linitis.—Carro's patient was a previously healthy woman of 30 who had never recovered complete health after an attack of influenza last year. Menstruation was suppressed, and she has been losing weight and strength and complains of pain in the stomach more intense after meals. The pain is strongest in the pylorus region, and keeps up until she has vomited, an hour or half an hour after the meal. The pain increases during exercising, even turning over in bed, but there are no signs of a peritoneal reaction, no ascites, no diarrhea. The most plausible explanation of the symptoms is the assumption of a fibroplastic process in the stomach, secondary to a manifest tuberculous process in both lungs.

Medicina Ibera, Madrid

June 21, 1919, **7**, No. 85

*Gastric Ulcer. C. G. Peláez.—p. 222. Concluded in No. 86, p. 241.
*Acute Poliomyelitis in Granada. Blasco Reta.—p. 224.

June 28, 1919, **7**, No. 86

Vacuum Suction for Extraction of Cataract in the Capsule. B. Castresana.—p. 243.
Migrating Abscess cured by Reabsorption. B. L. Díaz.—p. 246.

Surgical Treatment of Gastric Ulcer and Its Complications.—Peláez has been investigating the chemistry of the stomach during the months and years after gastro-enterostomy in 64 cases. He found normal conditions in regard to gastric secretion only in 6 per cent. while hypochlorhydria prevailed in 25.75 per cent. and anachlorhydria in 45.45 per cent. Two of the patients, apparently smoothly convalescing after the gastro-enterostomy for duodenal ulcer, suddenly developed tetany the twentieth and the eleventh days, with incessant vomiting until death the third or fourth day. The duodenum and stomach were enormously dilated in one but only the duodenum in the other. The passages were all permeable; the second patient had had an attack of tetany two months before the operation. In a little over two years, Peláez has operated in 140 cases for peptic ulcer; it was located in the duodenum in 26.42 per cent. of the cases. In the 103 gastric cases there were two ulcers in over 5 per cent., and in over 6 per cent. there was malignant degeneration. The operative mortality was 11.42 per cent. The gastro-enterostomy was directly responsible for the death in 2.14 per cent. and indirectly in the others.

Acute Poliomyelitis.—Blasco Reta states that there have been 68 cases of this disease at Granada since 1905, but the number of cases ran up to 12, 22 and 18 only during 1910, 1916 and 1917. The highest figure in the intervening years was 3.

Prensa Médica Argentina, Buenos Aires

May 30, 1919, **5**, No. 36

Vaccine Treatment of Secondary Infections with Pulmonary Tuberculosis. J. F. Mieres.—p. 353.
Refraction Findings in Malingerers. E. Dameno.—p. 354.
Syphilis as a Factor in Banti's Disease. L. L. Resio.—p. 354. Cont'n.
Arrhythmias. P. M. Barlaro.—p. 356. Cont'n.

Progresos de la Clínica, Madrid

June, 1919, **7**, No. 78

*The Deeper Membranes of the Eye. Muñoz Urra.—p. 225. Cont'n.
Secondary Malaria. Salvador Clavijo.—p. 253. Cont'n.

Degeneration and Regeneration of the Deeper Membranes of the Eye.—This instalment of this prize-crowned work has twenty-six illustrations, including several colored photomicrographs of the retina.

Reforma Médica, Lima

June-July, 1919, **5**, No. 58-59

*To Clean Up Peripheral Peru. C. E. Paz Soldán.—p. 75.

Sanitation of the Coast of Peru.—Paz Soldán here outlines a campaign to stamp out transmissible disease in Peru, especially in the coast cities. His address was delivered at a meeting of civil engineers at Lima, and they appointed a committee to take up the matter, asking him to be chairman of the committee.

Revista Médica, Puebla, México

July 15, 1919, **1**, No. 12

Malaria in Mexico. Angel de la Garza B.—p. 265.
Composition and Nutritious Value of the Foods and Drinks of the Native Mexicans. M. Ibañez.—p. 272. Cont'n.
Rupture of Uterus. A. López Hermosa.—p. 279. Cont'n.

Revista de Medicina y Cirugía, Havana

Aug. 25, 1919, **24**, No. 16

*Treatment of Chronic Inflammation of Maxillary Sinus. J. Alemán.—p. 417.
*Malaria in Cuba. J. Le-Roy y Cassá.—p. 422.

Maxillary Sinusitis.—Alemán reiterates that nothing but extensive opening up of the sinus will permit a radical cure. This can be counted on in three or four weeks unless other sinuses are involved. In one case of seven years' standing, long rebellious gastro-intestinal derangement subsided almost at once as the sinus healed.

Malaria in Cuba.—Le-Roy states that practically every one in Cuba had malaria at the close of the war. There were 4,107 deaths from malaria in 1900. But when the Americans took hold, their efforts to eradicate yellow fever reduced the numbers of malaria mosquitoes as well as of the stegomyia. In 1913 there were only 447 deaths ascribed to malaria. In ten years the malaria death rate had been reduced from 2.52 to 0.33 per thousand inhabitants of the island, and in Havana from 1.30 to 0.02. He gives eleven large tables showing the number of cases by provinces, ages, months, etc., and the corresponding weather charts.

Revista de Psiquiatria, Lima, Peru

July, 1919, **2**, No. 1

Attempt to Systematize Criminology from Didactic Standpoint. O. Miró Quesada.—p. 1.
The Nervous System in Peruvian Folk Lore. H. Valdizán.—p. 26.
*Psychanalysis in the School. H. F. Delgado.—p. 48.

Psychanalysis in the School.—This article was presented at the recent Child Welfare Congress at Montevideo. Delgado declares that the present school methods of education "have defects which only psychopedanalysis will correct." A new section in the medical inspection of schools should be provided for the purpose, and the teachers should be trained in the theory and practice of psychopedanalysis. He explains how this would lay the foundations for a social reform by improving the individual and the community at large in mind, in ethics, and in practical matters.

Semana Médica, Buenos Aires

June 12, 1919, **26**, No. 24

Serobacterin Treatment of Pertussis. C. Ponce.—p. 607.
Prophylaxis of Child Abandonment. J. F. Montellano.—p. 612.
Dangers of Delay with Dystocia. T. A. Chamorro.—p. 615.
Inguinal Hernia in Children. R. A. Rivarola.—p. 619.
The Medical Curriculum. A. Noceti.—p. 621.
*Tuberculin Treatment of Asthma from Tuberculous Glands. L. Velasco Blanco.—p. 624.
Tracheobronchial Glands in Diagnosis. J. P. Garrahan.—p. 630.
Cure under Mercurial Treatment of Aneurysm in Popliteal Artery. J. A. Petrocchi.—p. 633.

Tuberculin Treatment of Asthma from Tuberculous Glands.—Velasco remarks that asthma from tuberculous glands at the hilum or in its vicinity is more common than generally recognized. Tuberculous tracheobronchial glands are not likely to entail asthma except in children with an inherited taint. Tuberculin treatment modifies the asthma, and has cured it completely in a number of cases in his experience. He gives the details of nine cases of the kind, showing the improvement not only of the asthma but in the general condition under the tuberculin treatment.

Siglo Médico, Madrid

June 28, 1919, **66**, No. 3420

*Preventive Immunization by Causticotherapy. Camilo Calleja.—p. 513. Conc'n in No. 3421.
Simple Apparatus for Bedside Estimation of Partial Tension of Alveolar Carbon Dioxid. R. Carrasco Formiguera.—p. 515.
*Operative Treatment of Strabismus. B. Castresana.—p. 517. Conc'n.

Immunization Against Necrotic Processes.—The main points of Calleja's article were summarized on page 1021.

Operative Treatment of Strabismus.—Castresana's operative method for correcting squint was described recently on page 461 of the current volume, Aug. 9, 1919.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

July 5, 1919, **2**, No. 1

*The Arthritic Diathesis. J. E. L. van Breemen.—p. 4.
A Case of Manic-Depressive Psychosis with Paranoid Features. J. van der Torren.—p. 10.
Treatment of Influenza Pneumonia. G. Berg.—p. 21.
*Correction of Paralyzed Hip. J. van Assen.—p. 27.
Severe Poisoning with Both Arsenic and Mercury with Recovery. J. W. T. Lichtenbelt and E. H. Jannink.—p. 29.

The Arthritic Diathesis.—Van Breemen has found in the course of his ten years of service as consulting physician for the Institute voor Physische Therapie at Amsterdam that a number of the cases of chronic rheumatism did not fit into the usual classification. Study of this group over months and years confirmed that they were in a class apart from ordinary chronic articular rheumatism. This was particularly evident in the benign course of the joint affection, and in the favorable influence of appropriate treatment. Also in the way in which the disturbances shifted about, from joints to muscles, to tendons, then to neuralgias, the patients finally becoming classed as neurasthenics. The manifest influence of depressing worry and grief on the course of these disturbances was often evident, as also the chronic tendency, and the difficulty of differentiating them from gouty phenomena. Another feature of this group was the unmistakable familial and hereditary stamp, and the frequency of asthma, diabetes, and kidney stones in the men of these families and of gallstones in the women, early arteriosclerosis, and functional nervous affections and psychoses.

All the above is included in the French term of arthritism or the arthritic diathesis. Renaut defines it as a loss of the normal balance between the manifestations of nerve force and the muscle force, and van Breemen has been making a study of the behavior of the muscles in persons of this category, and the behavior of the circulation in the skin. He found that the muscles became fatigued much more readily and recuperated much more slowly than in other persons; also that lactic acid, which seldom occurs in normal urine, appears in the urine of this group after physical exertion, and may reach a total of 4 or 6 gm. per liter. On the other hand, experience has shown that rheumatic disturbances occur in them after immobilization as, for instance, after a fracture, much sooner than in other persons. The muscles are thus seen to be substandard both as regards exercise and rest. The muscles are not capable of executing normally the will that seeks to control them.

He found further that the skin changes to the temperature of the environment during cold and wet much more rapidly than normal skin, while it responds less actively than in normal persons to heat-supplying procedures. Both of these anomalies seem to indicate defective functioning of the circulation in the skin. The classification of these cases in a group apart permits proper treatment as they require other procedures than those needed with ordinary chronic rheumatism, a different diet and different mineral waters and baths treatment. It will surely be a great progress when we can class together and treat from a general standpoint, eczema and nutritional disturbances in infants, bronchitis, joint affections, etc., striving to modify the causal factors, rather than to attack merely the symptoms by local treatment. There can be no question that the treatment of a large number of functional neuroses depends on the acceptance or non-acceptance of the idea of the arthritic diathesis. Long continued and systematic exercise of muscles, and massage, have often proved an actually causal treatment.

Correction of Paralysis of the Muscles of the Hip.—Van Assen reports very encouraging results from utilizing the external oblique muscle as the abductor for the hip. He followed Samter's technic in the main, but obtained better functioning than Samter realized himself, according to the latter's report in 1917, eight months after the operation. The incision runs from the greater trochanter to and above the crest of the ilium, and then curves forward and inward, ending thus

somewhat inside the superior anterior iliac spine. A piece of cartilage and bone, 5 cm. long, is then pried loose from the external margin of the exposed crest, beginning 1 cm. back of the spine. This piece is cut off from below upward, thus obtaining access from below to the space between the external oblique and the internal. The fascia is then separated downward, the skin incision extended a little for this purpose. Then on the posterior surface of the femur and trochanter a strip of periosteum, 1.25 cm. wide, is outlined front and rear and below, and with a chisel it is pried off along with a small layer of the corticalis. The flap thus lifted up, but still attached to the top of the trochanter, is turned upward and sutured firmly to the external oblique muscle which is drawn down over the crest of the ilium for the purpose. The suture is reenforced with the flap of cartilage and bone from the crest of the ilium. By this means the upper end of the femur is powerfully abducted and extended and twisted a little inward. A plaster cast is applied which holds the upper bone in 45 degrees of abduction, 10 degrees overextension, and 10 degrees twisting inward, the knee in extension. In the case described the cast was taken off the twenty-second day and a splint applied, maintaining the abduction. Twice a day the splint was taken off and active abduction exercises done. The thirty-first day the splint was discarded, but a plaster bandage was put on each knee to hold them stiff and enable the boy to run about until he had suitable braces. The braces were applied in about three months, and the boy now runs about without holding on to any support. The illustration shows how perfectly he can actively abduct the leg. As he does this, the band running from the trochanter over the crest of the ilium can be felt drawn taut. No illustrations are given of the technic, and no details beyond those given above.

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*Description of the Anopheline Larvae of Netherlands' India so Far as Known to Date. N. H. Swellengrebel and J. M. H. Swellengrebel-de Graaf.—p. 1.

The Mosquitoes of Netherlands India.—This entire issue of the *Mededeelingen* is devoted to the biology of and the microscopic findings in the larvae of eighteen different known varieties of anopheles mosquitoes and of two yet unclassified. A large number of photographs are also given, showing the favorite haunts of the mosquitoes. Each of the twenty-three plates of microscopic findings give the minute details of the fans of different hairs, plumes, leaflets, etc., found on the larvae. There is also a large folding chart with diagrams to facilitate identification of the species.

Hospitalstidende, Copenhagen

Aug. 13, 1919, **62**, No. 33

*Reconstruction of Bone and Primary Suture with Compound Fracture. J. Nordentoft.—p. 945.

Reconstruction of Bone and Primary Suture with Compound Fracture.—Nordentoft reviews his experiences with osteosynthesis and with primary suture with compound fractures in a number of cases in which he applied to industrial and other injuries the lessons learned from the war surgeons in regard to reconstruction of bone and primary suture. Brilliant results were obtained, healing by primary intention in 70 and in 90 per cent. of the cases—even with the most serious lesions. At first it seems wrong to treat such lesions in this way, but the benefits from it are enormous, he reiterates, shortening the stay in bed, rendering the after-treatment far simpler and easier, and giving incomparably better functional results.

Aug. 20, 1919, **62**, No. 34

*Diet in Treatment of Heart Disease. V. Rubow.—p. 969.

Diet in Treatment of Heart Disease.—Rubow refers to chronic insufficiency of the heart, and expatiates on the importance of the calory content and the salt and water content of the food as affecting the course of the heart disease. Even a little restriction in these three lines, with bed rest, may cure dropsy. If not, more vigorous restriction may accomplish it, supplemented by heart stimulants. This is exemplified in the Karell course of treatment in which the patient is kept absolutely still in bed and is allowed nothing but 800 gm. of milk in the twenty-four hours. The benefit from this Karell course confirms the great importance of dietetic measures in heart disease. The metabolism is low on this diet, and the heart is taxed less to correspond. The specific action on the edema from the Karell course is evidently due to the small intake of water. Sometimes it is accompanied by a slightly increased diuresis. The dry substances in the blood may increase by 10 per cent. under a Karell course as the mass of the blood shows less and less water. This increases the osmotic interchanges, and the edema fluid streams from the tissues into the blood, carrying with it large amounts of salt, and the salt is rapidly eliminated through the kidneys provided they are permeable for salt. The elimination of water through the skin can be promoted by sweating procedures, but it must not be forgotten that every kilogram of edema fluid thus evaporated through the skin throws from 5 to 8 gm. of salt on the kidneys for elimination. If the kidneys are unable to secrete urine with much salt content, the salt may be retained in the blood. The resorption of the edema fluid thus acts like an intravenous injection of a hypertonic saline solution, and the diuresis may be increased as early as the second or third day. This rapid increase in the diuresis cannot be regarded as always a favorable sign, as it may occur in consequence of kidney disease.

In other cases, however, the edema disappears in the first day or so without material increase of the diuresis but later, the third to the fifth day, there may be more or less increase. The explanation of this is probably that, as the metabolism declines and the edema is reduced, the work of the heart is lightened, and conditions in the circulation improve. It is possible also that the lesser volume of the blood cooperates in relieving the insufficiency of the heart functioning.

Another advantage of the Karell course is that the lesser intake of salt reduces the thirst. Free ingestion of water with a salt-poor diet in some cases of cardiac insufficiency reduces the diuresis, and there is less thirst. With a moderate, constant supply of water, considerable reduction in the salt intake does not lead to increase of the diuresis with cardiac edema, but the edema may be kept stationary with it. In management of the case after the Karell course, the dietary must be water-poor and salt-poor and the calories kept down to the actual needs of the metabolism. A combined after-treatment, giving digitalis and ordering absolute repose or the Karell course or other dry diet for a few days every week or month—according to the severity of the case—is often the most effectual and the easiest to realize of all measures with cardiac insufficiency. Treatment of this kind can be kept up successfully for years.

Ugeskrift for Læger, Copenhagen

Aug. 7, 1919, **81**, No. 32

*Treatment of Spastic Hemiplegia. H. Abrahamsen.—p. 1273.
*The Blood in the Elderly. K. M. Hansen.—p. 1281.

Treatment of Spastic Hemiplegia.—Abrahamsen reviews spastic hemiplegia in general, and describes a clinical case following a stab wound of the neck. The spasm was localized and extremely severe, but there was no actual contracture. After complete failure of persevering medical measures, he decided to weaken the reflex impulses and follow with systematic exercises of the muscles. For this it was necessary to resect half of each branch innervating the various muscles involved, reaching the nerves through the popliteal space and the inguinal region, and, in the arm, resecting half of the median nerve. The different nerves were easily reached and resected, and all the spastic phenomena subsided completely except for a slight lifting of the foot as the young man steps.

The Erythrocyte Count and the Hemoglobin Percentage in the Aged.—Hansen has been examining forty persons who seemed to be normal for their advanced age. The tabulated findings correspond closely to similar findings earlier in life, age in itself, apparently, not modifying the red corpuscle count or the hemoglobin percentage. The range of the latter in the men was from 87 to 102, and in women from 84 to 97.